

# RADview-SC/Vmux

Network Management System  
Service Center for Vmux Applications

Vmux-110

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# Chapter 1

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## Introduction

This chapter provides an overview of the Vmux-110 device and the RADview Service Center Vmux-110 user interface.

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### 1.1 Overview of the Vmux-110 Device

Vmux-110 is a voice trunking gateway that enables digital E1/T1 or multiple FXS/FXO/E&M analog voice channels to be compressed and extended over a serial, E1/T1 or 10/100Base-T uplink. Vmux-110 implements G.723.1, G.729 A, G.711 compression and TDMoIP or AAL2oMPLS multiplexing algorithms to send the voice channels over the IP, E1/T1 or n x 64 kbps network.

Vmux-110 utilizes voice activity detection, silence suppression, echo cancellation and other techniques to improve voice quality and bandwidth utilization. The gateway detects, generates and relays DTMF signaling. In addition, Vmux-110 supports fax relay, modem relay and voice band data.

The built-in router supports NAT, firewall, static and dynamic routing, RIP1 and RIP2. To facilitate the integration of new devices into a DHCP IP network, the router also supports DHCP client, server and relay.

**Note**

---

*In this version of RADview, the router function is not supported.*

---

Vmux-110 is managed locally via an ASCII terminal or remotely via Telnet or RADview (RAD's SNMP-based network management application).

## Interfaces

Vmux-110 includes two Ethernet LAN ports, user and network, and can be ordered with the following options:

**Voice port options:**

- E1 voice channel port
- T1 voice channel port
- 4 FXS voice ports
- 4 FXO voice ports
- 4 E&M voice ports
- 8 FXS voice ports
- 8 FXO voice ports
- 8 E&M voice ports

**Link port options:**

- E1 link
- T1 link
- Serial (V.35) link
- Ethernet link.

---

## 1.2 RADview-SC/Vmux-110 Overview

Vmux-110 includes an SNMP agent that enables full management from the network via SNMP; for example, by means of RADview network management stations. In addition, Vmux-110 includes the following additional management capabilities via both out-of-band and inband communication:

- Supervision terminal (ASCII terminal or a PC running a terminal emulation program), connected either directly or through a modem or any other type of full-duplex data link. This terminal can perform all of the Vmux-110 supervision and configuration functions, including preliminary system configuration.
- Telnet, from any host capable of IP communication with Vmux-110 (out-of-band using SLIP or PPP, or inband over IP). The functions available via the Telnet are similar to those available from a supervisory terminal.
- Web browsers, using ConfiguRAD. ConfiguRAD is a user-friendly Web-based element management system that is embedded in Vmux-110 and provided at no extra cost. ConfiguRAD can be accessed from any standard Web browser.

This manual discusses configuration via RADview, RAD's SNMP-based network management application for PC or Unix. To configure Vmux-110 via ASCII terminal, Telnet, or Web browser, see the [\*Vmux-110 Installation and Operation Manual\*](#).

### Overview of the RADview FCAPS Model

RADview provides a complete solution for monitoring and controlling Vmux-110. The RADview solutions conform to ITU-T Telecommunication Management Network (TMN) recommendations for SNMP management systems, known as the FCAPS model:

- **Fault management** – detects and correlates faults in network devices, isolates faults and initiates recovery actions.
- **Configuration management** – tracks configuration changes, configures, installs and distributes software and configuration files over the network.
- **Accounting management** – collects accounting data and generates network usage reports.
- **Performance management** – continuously monitors network performance (QoS, CoS) and resource allocation.
- **Security management** – controls and restricts access to network resources.



## Overview of the Vmux-110 Management Functions

*Table 1-1* lists the operations that you can perform via RADview, and their locations in this manual.

*Table 1-1. Management Functions*

Operation	Location in User's Manual
Configuration	Chapter 3
<ul style="list-style-type: none"><li>• System Information</li><li>• Port User Information</li><li>• System Parameters</li><li>• Date and Time</li><li>• Manager List</li><li>• Signaling Profile Parameters</li><li>• Bridge Ports</li><li>• VLAN Table</li><li>• FXS Timeouts and Cadences</li><li>• Port Information</li><li>• Copying a Port Configuration</li><li>• Displaying Host IP Information</li><li>• Displaying Analog Voice Port Status</li><li>• Displaying Link E1 or Link T1 Port Time Slot Assignments</li><li>• Displaying Analog Voice Port Time Slot Assignments</li><li>• Displaying Bundle Connection Parameters</li><li>• Reading (Uploading) the Agent Configuration</li><li>• Updating (Downloading) the Configuration to the Agent</li><li>• Resetting Vmux-110 to the Default Configuration</li><li>• Polling the Agent</li><li>• Resetting Vmux-110</li></ul>	
Security	Chapter 5
<ul style="list-style-type: none"><li>• Setting Management Access Authorizations</li></ul>	

*Table 1-1. Management Functions (Cont.)*

Operation	Location in User's Manual
Performance	Chapter 6
<ul style="list-style-type: none"><li>• Setting the Polling Interval</li><li>• Viewing Bundle Connection Statistics</li><li>• Viewing Current Statistics for an E1/T1 Port</li><li>• Viewing Intervals Statistics for an E1/T1 Port</li><li>• Viewing Data Stream Statistics for an Channel E1/T1 Port</li><li>• Viewing Receive Frame Type Statistics for a LAN Port</li><li>• Viewing Transmit Frame Type Statistics for a LAN Port</li><li>• Viewing Error Statistics for a LAN Port</li><li>• Viewing Frame Size Statistics for a LAN Port</li><li>• Viewing Statistics for an E1/T1 or Serial Port Link</li></ul>	
Fault	Chapter 7
<ul style="list-style-type: none"><li>• Viewing All Active Alarms</li><li>• Viewing System Level Active Alarms</li><li>• Viewing IP Bundles Active Alarms</li><li>• Clearing the System Level Active Alarm Buffer</li><li>• Clearing All Levels of the Active Alarm Buffer</li><li>• Configuring Alarm Attributes</li><li>• Configuring Alarm Reports</li><li>• Displaying Sanity Check Errors</li><li>• Displaying the All Buffer Alarms List</li><li>• Displaying the New Buffer Alarms List</li><li>• Displaying the Port Active Alarm List</li><li>• Clearing the Port Active Alarm Buffer</li><li>• Running Loopback Tests</li></ul>	

# Chapter 2

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## Installation and Operation

This chapter describes how to configure Vmux-110 for management and explains how to perform the following tasks:

- Pre-configuring Vmux-110 for Network Management
  - Connecting Vmux-110 to the Management Station
  - Launching RADview Vmux-110
  - Using the Graphical User Interface
- 

### 2.1 Pre-configuring Vmux-110 for Network Management

To remotely administer Vmux-110 via a Network Management Station (NMS), it is necessary to first configure some basic Vmux-110 parameters via an ASCII terminal. The following steps are required:

1. Connecting a Terminal to the Control Port
2. Disabling the Router
3. Configuring the host IP parameters (IP address, IP mask, default gateway, SNMP Communities)
4. Defining the Network Management Station in the Manager List.

For more detailed information about configuring Vmux-110 for Network Management, see [Chapter 4 of the Vmux-110 Installation and Operation Manual](#).

#### Connecting a Terminal to the Control Port

In order to configure the basic IP parameters, it is necessary to connect an ASCII terminal to the Vmux-110 control port and log in.

➤ **To configure the Vmux-110 system parameters:**

1. Configure an ASCII terminal to:
  - One start bit
  - Eight data bits
  - No parity
  - One stop bit
  - No flow control
  - VT100 emulation.

2. Connect the terminal to the Vmux-110 CONTROL port.
3. Press <Enter> several times (to allow Vmux-110 to detect the rate).
4. Initiate the control session by entering the administrator user name and password.

## Disabling the Router

The Vmux-110 host IP parameters may be assigned automatically via DHCP or they may be configured manually. In order to manually configure the Host IP Parameters, the Vmux-110 router must be disabled.

- **To disable the Vmux-110 router:**
  1. Display the System menu (**Configuration > System**).
  2. Disable the router.
  3. Save the changes.

## Configuring the IP Parameters

The Vmux-110 host IP parameters may be assigned automatically via DHCP or they may be configured manually.

- **To manually configure the host IP parameters:**
  1. Display the Host IP menu (**Configuration > System > Management > Host IP**).
  2. Disable the DHCP client mechanism.
  3. Save the changes.
  4. Enter the new host IP parameters for Vmux-110:
    - Host IP address
    - IP subnet mask
    - Default gateway.
  5. Set the SNMP Read, Write, and Trap Communities for Vmux-110 to public.
  6. Save the changes.

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**Note**

*In order to manually configure the Host IP Parameters, the Vmux-110 router must be disabled.*

---

```

Configuration>System>Management>Host IP

1. IP Address... (172.17.172.191)
2. Subnet Mask... (255.255.255.0)
3. Default Gateway... (172.17.172.1)
4. DHCP Client (Disable)
5. Read... (public)
6. Write... (private)
7. Trap... (public)

```

Figure 2-1. Configuring the Host IP Parameters

## Configuring the Manager List

In order to remotely configure Vmux-110, the NMS needs to be listed in the Manager List. The **Manager List** command enables you to display and configure the Manager List, where you designate the destination NMS stations for SNMP traps.

➤ **To configure the Manager List:**

1. Display the Manager List menu (**Configuration > System > Management > Manager list**).
2. Enter the Manager IP address of the Network Management Station.
3. Save the changes.

```

Configuration>System>Management>Manager list

Manager ID          IP Address
1                   172.17.172.100
2                   0.0.0.0
3                   0.0.0.0
4                   0.0.0.0
5                   0.0.0.0

1. Change cell      ... (0.0.0.0)

```

Figure 2-2. Configuring the Manager List

---

## 2.2 Connecting Vmux-110 to the Management Station

Vmux-110 can be managed by a Network Management Station (NMS) that is located on the LAN (hub or switch) connected to the one of the unit's Ethernet ports.

➤ **To connect Vmux-110 to the Network Management Station:**

1. Connect a Network Management Station to the LAN (hub or switch).
2. Connect one of the Vmux-110's Ethernet ports to the LAN.

**Note**

*Normally, Vmux-110 management is performed out-of-band, via the USER port. To enable in-band management via the NET port, you may need to configure additional parameters.*

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## 2.3 Launching RADview Vmux-110

To monitor and manage the Vmux-110 device using the RADview Vmux-110 Element Manager application, it must first be opened or launched. The Element Manager can be opened from the SNMPc Management Console (PC version) or from HPOV (Unix version). A separate RADview Vmux-110 Element Manager window can be opened for each Vmux-110 unit.

➤ **To open the Vmux-110 Element Manager from the SNMPc Management Console window (PC version):**

- Double-click the Vmux-110 icon located in the map view.

The RADview Vmux-110 Element Manager window appears (see [Figure 2-3](#)).

➤ **To open the Vmux-110 Element Manager from the HPOV window (Unix version):**

- Select the Vmux-110 icon located in the map view and then click the zoom

icon (  ).

The RADview Vmux-110 Element Manager window appears (see [Figure 2-3](#)).

## 2.4 Using the Graphical User Interface

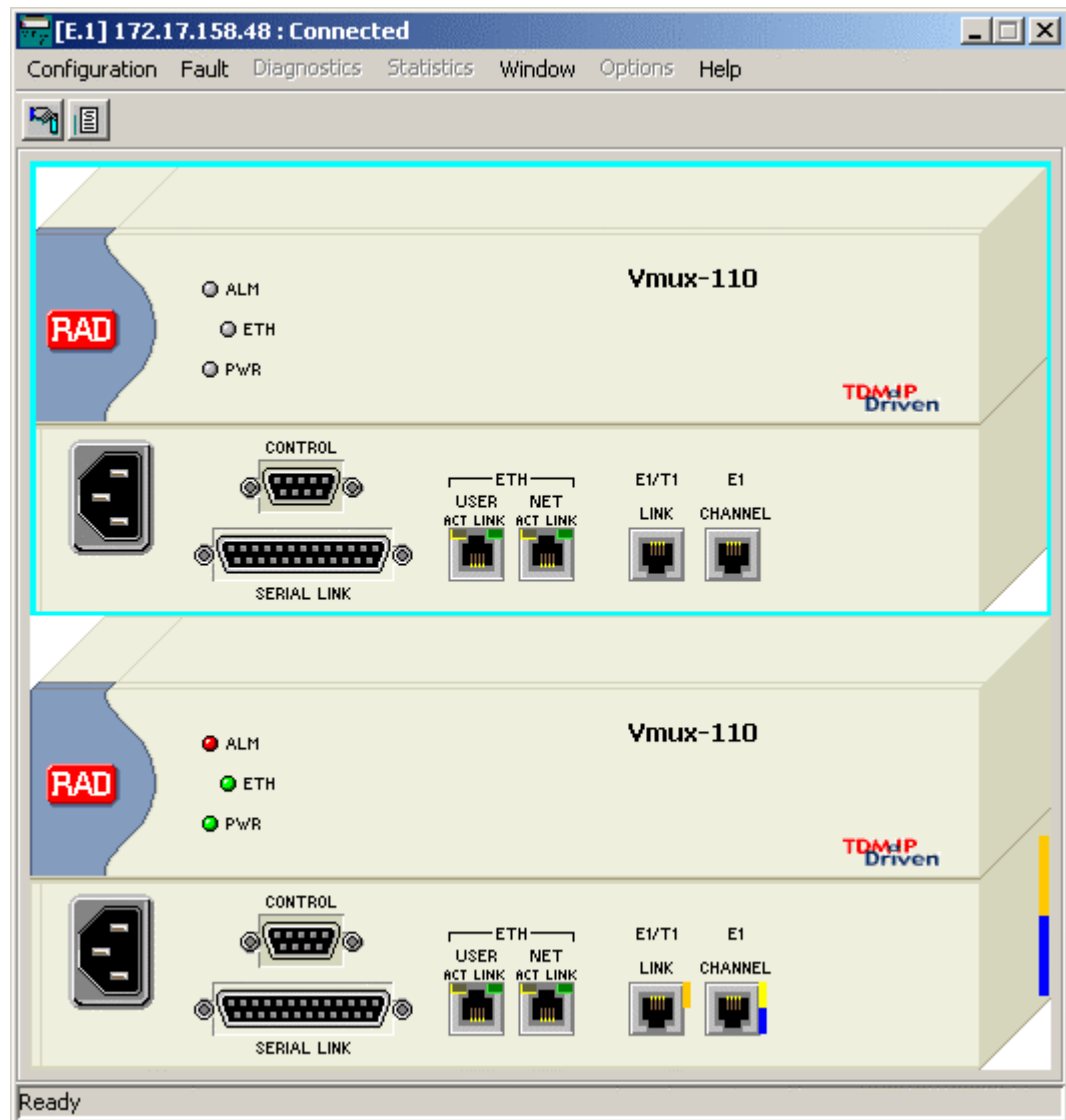


Figure 2-3. Element Manager – Vmux-110

The RADview Vmux-110 Element Manager window provides a dynamically updated graphical representation of the Vmux-110, allowing you to monitor and manage the Vmux-110 device. The Element Manager window displays:

- The device HW configuration, showing the existing ports and their physical connectors
- The Power Supply (AC or internal DC)
- The LED status indicators of the device
- Alarm/Test status indication bars (colored bars, to the right of the device/ports).

Vmux-110 is managed by selecting an object and then selecting the desired function from the menus. In many cases, this will open a sub-window or dialog box, allowing further selection and manipulation.

**Note**

*Menus vary according to the hardware configuration and the selected mode and selected object. Unavailable menu options either don't appear at all or are displayed in gray text and cannot be selected.*

## Edit and Agent Modes

The Element Manager window contains two Vmux-110 images, one above the other. The two images provide two configuration modes:

- Edit mode (the upper image) – modifies the temporary configuration, stored at the Network Management Station
- Agent mode (the lower image) – configures the agent located within the physical Vmux-110 device (the active configuration).

➤ **To select Edit Mode:**

- In the Element Manager window, click the top image

➤ **To select Agent Mode:**

- In the Element Manager window, click the bottom image

When Agent mode is selected, the focus is on the configuration of the actual physical Vmux-110 (the active configuration).

## Displaying the Agent Mode View

The **Agent View** command enables you to display or hide the Agent mode view.

➤ **To display or hide the Agent Mode View:**

1. Select the device.
2. From the **Window** menu, select **Agent View**.

If the Agent mode view was previously hidden, a check mark appears next to the Agent View entry in the menu and the Agent mode view appears. If the Agent mode view is already visible, the Agent mode view disappears.

**Note**

*The Window menu is only enabled when there is communication with the Agent.*

## LEDs

The Agent mode front panel of the Vmux-110 includes LED indicators that show the current operating status of the device. [Table 2-1](#) describes the indicators.



*Table 2-1. Vmux-110 LEDs*

Name	Function	Location
ALM (red)	ON – Alarm exists	Front panel
	OFF – No alarm exists	
ETH (green)	ON – Link is connected and synchronized	Front panel
	OFF – Link is not connected	
PWR (green)	ON – Device is receiving its Power Supply from PS	Front panel
	OFF – No power in the device.	

## Alarm/Test Status Indication Bars

In addition to the LED indicator colors, when there are active alarms or tests, the Agent mode front panel of Vmux-110 displays alarm and test status indication bars. These short vertical bars are located to the right side of the Vmux-110 device and to the right of each of its ports, indicating the locations of the alarms and tests. The indication bars display the active alarm status and test status, based upon polling and traps. The following table describes how to interpret the meaning of a status indication bar based upon its location and color.

*Table 2-2. Vmux-110 Alarm/Test Status Indication Bars*

Location	Color	Alarm/Test Status Indication
Upper right of device/port	Transparent (invisible)	There are no alarms on the device/port.
Upper right of device/port	Yellow	Minor alarms exist on the device/port.
Upper right of device/port	Orange	Major alarms exist on the device/port.
Upper right of device/port	Red	Critical alarms exist on the device/port.
Lower right of device/port	Transparent (invisible)	All tests are stopped on the device/port.
Lower right of device/port	Blue	A test is active on one or more time slots of the device/port.

## Selecting the Device or a Port

By selecting an object, you can manipulate or manage the selected system or port. When selected, a light blue frame is displayed around the selected window or object. Only one object can be selected at a time.

There are two Vmux-110 user interface object levels:

- System (whole device) – contains all of the parameters and functions that are common to the whole device.
  - Port – contains all of the parameters and functions of the selected port.
- **To select the entire device (system):**
- In the Element Manager window, click any empty area of the device (where there is no port).
- **To select a port:**
- In the Element Manager window, click the frame surrounding the desired port.

---

**Note**

- *When a Vmux device contains more than 4 analog ports (for example: 8 ports), all these ports reside on a single connector. Each port within this specific connector is marked with its relative number (for example: the 8FXS connector has 8 numbers labeled 1 through 8). Select a specific port number by clicking the number of the desired port.*
  - *The Control port is not selectable.*
- 

## Status Indicators

At the top of the window, the title bar displays <element name>:<status>, where status is either **Connected** or **Disconnected**, according to the current connectivity of the network element to the NMS.

At the bottom of the Element Manager window, there is also a communications status bar. Sometimes, congestion in the network handling the management traffic causes significant delays during polling, transfer of large data tables, etc. When feasible, a progress bar is used to inform the operator of the ongoing process status. Otherwise, a message is displayed in the status bar at the bottom of the screen, according to the following table.

*Table 2-3. Element Manager Status Bar Messages*

Message	Status
<b>Working...</b>	Displayed from the moment when a request is sent to the network element (Vmux-110), until data is received or a certain time expires (around 5 seconds).
<b>Waiting...</b>	Displayed while the RADview station waits more than a few seconds for the network element response, but less than the time-out time.
<b>Interrupted</b>	When all attempts to communicate with network element failed (time-out), or when the response was an SNMP error.
<b>Ready</b>	Displayed after the process has been successfully completed.

## Common Dialog Buttons

Function buttons, located in a sub-window or dialog box, each initiate the execution of an operation. The most common buttons, and their respective functions, are listed in the following table.

*Table 2-4. Common Dialog Buttons*

Button	Function
<b>Set</b>	Confirm and activate the selections made in the dialog box and close the box.
<b>Apply</b>	Confirm and activate the selections made in the dialog box without closing the box.
<b>Cancel</b>	Cancel the selections made in the dialog box and close the box.
<b>Close</b>	Close the dialog box without any other effect.
<b>OK</b>	Confirm the message displayed in an information box, and close the box.
<b>Add</b>	Open a new dialog box that is used to add a new item to the list or table displayed in the dialog box.
<b>Change</b>	Open a new dialog box that is used to change an item selected in the list or table displayed in the dialog box.
<b>Delete</b>	Delete a selected item from the list or table displayed in the dialog box.
<b>Refresh</b>	Poll the managed unit to retrieve again the information needed to display the current dialog box. This action updates the displayed information.

## Displaying Help

The **Help** menu provides convenient access to online help.

- To display online help:
  - From the **Help** menu, select **User's Manual....**

The online User's Manual appears.

## Displaying the Application Software Information

The **About Vmux-110...** menu displays information about the RADview-SC/Vmux-110 Element Manager application software, such as the version number.

- To display the Element Manager software information:
  - From the **Help** menu, select **About Vmux-110....**

The About Vmux-110 dialog box appears.

## System Level Operations

The following tables list the RADview tasks available on the system level.

### System Level Configuration Menu

*Table 2-5. System Management Options – Configuration Menu*

Task	Location in User's Manual	Mode	Path in RADview
Viewing Mux Information	Chapter 3	Agent	Configuration ➡Mux Info
Configuring System Information	Chapter 3	Both	Configuration ➡System Info
Configuring System Parameters	Chapter 3	Both	Configuration ➡System Parameters
Selecting the Date Format	Chapter 3	Agent	Configuration ➡Date Format
Setting the Date and Time	Chapter 3	Agent	Configuration ➡Date & Time
Reading (Uploading) Agent Configuration	Chapter 3	Edit	Configuration ➡Read
Updating (Downloading) Configuration to the Agent	Chapter 3	Edit	Configuration ➡Update
Configuring Signaling Profile Parameters (Channel E1/T1 devices only)	Chapter 2	Both	Configuration ➡Signaling Profile...

*Table 2-5. System Management Options – Configuration Menu (Cont.)*

Task	Location in User's Manual	Mode	Path in RADview
Viewing Bundle Connection Table Parameters	Chapter 3	Both	Configuration ➡Bundles Connection Table
Configuring Bridge Ports	Chapter 3	Both	Configuration ➡Bridge Ports
Configuring the VLAN Table	Chapter 3	Both	Configuration ➡VLAN Table
Displaying Analog Voice Port Time Slot Assignments	Chapter 3	Both	Configuration ➡Analog Voice ➡TS Assignment
Displaying Analog Voice Port Status	Chapter 3	Both	Configuration ➡Analog Voice ➡Status
Configuring FXS Timeouts and Cadences	Chapter 3	Both	Configuration ➡Analog Voice ➡Timeouts & Cadences
Polling the Agent	Chapter 3	Both	Configuration ➡System Commands ➡Poll Agent
Resetting the Hardware	Chapter 3	Agent	Configuration ➡System Commands ➡Reset HW
Resetting the Configuration	Chapter 3	Agent	Configuration ➡System Commands ➡Reset Configuration

## System Level Fault Menu

In Edit mode, the Fault menu is disabled (gray) if there is no communication with the Agent.

*Table 2-6. System Management Options – Fault Menu*

Task	Location in User's Manual	Mode	Path in RADview
Displaying the Active Alarm Buffer	Chapter 3	Agent	Fault ➤Alarms ➤Display ➤All
Displaying the System Level Active Alarm Buffer	Chapter 3	Agent	Fault ➤Alarms ➤Display ➤System Level
Displaying the IP Bundles Active Alarm Buffer	Chapter 3	Agent	Fault ➤Alarms ➤Display ➤IP Bundles...
Clearing the Active Alarm Buffer	Chapter 3	Agent	Fault ➤Alarms ➤Clear All
Clearing the System Active Alarm Buffer	Chapter 3	Agent	Fault ➤Alarms ➤Clear
Configuring Alarm Attributes	Chapter 3	Agent	Fault ➤Alarms ➤Configuration ➤Attributes
Configuring Alarm Reports	Chapter 3	Agent	Fault ➤Alarms ➤Configuration ➤Reports
Displaying the Alarm Buffer List	Chapter 3	Agent	Fault ➤History Log ➤All
Displaying the New Alarm Buffer List	Chapter 3	Agent	Fault ➤History Log ➤New
Displaying Sanity Check Errors	Chapter 3	Edit	Fault ➤Sanity Check Errors

## System Level Statistics Menu

*Table 2-7. System Management Options – Statistics Menu*

Task	Location in User's Manual	Mode	Path in RADview
Viewing Bundle Connection Statistics	Chapter 3	Agent	Statistics ➡Bundle Connection Table

## System Level Window Menu

In Edit mode, the Window menu is disabled (gray) if there is no communication with the Agent and the Agent window is not currently displayed.

*Table 2-8. System Management Options – Window Menu*

Task	Location in User's Manual	Mode	Path in RADview
Toggling the Agent View	Chapter 2	Both	Window ➡Agent View

## System Level Options Menu

*Table 2-9. System Management Options – Options Menu*

Task	Location in User's Manual	Mode	Path in RADview
Configuring the Manager List	Chapter 3	Agent	Options ➡Manager List
Setting Management Access Authorizations	Chapter 5	Agent	Options ➡Access

## Port Level Operations

*Table 2-10* lists the configuration management tasks that are available when you select a port in Agent or Edit Mode.

### Port Level Configuration Menu

*Table 2-10. Port Management Options – Configuration Menu*

Task	Location in User's Manual	Mode	Path in RADview
Configuring Port Information	Chapter 3	Both	Configuration ➤Port Info
Displaying Link E1 or Link T1 Port Time Slot Assignments	Chapter 3	Both	Configuration ➤TS Assignment
Copying a Port Configuration	Chapter 3	Edit	Configuration ➤Copy
Configuring Port User Information	Chapter 3	Edit	Configuration ➤User Info

### Port Level Diagnostics Menu

*Table 2-11. Port Management Options – Diagnostics Menu*

Tasks	Location in User's Manual	Mode	Path in RADview
Running a Loopback Test on a Port	Chapter 5	Agent	Diagnostics ➤Test

### Port Level Fault Menu

*Table 2-12. Port Management Options – Fault Menu*

Tasks	Location in User's Manual	Mode	Path in RADview
Displaying the Alarms for a Port	Chapter 7	Agent	Fault ➤Alarms ➤Display
Clearing the Alarms for a Port	Chapter 7	Agent	Fault ➤Alarms ➤Clear



## Port Level Statistics Menu

Statistics are only available from Agent mode.

*Table 2-13. Port Management Options – Statistics Menu*

Tasks	Location in User's Manual	Mode	Path in RADView
Setting the Polling Interval	Chapter 6	Agent	Statistics ➡Polling Interval
Viewing Current Statistics for an E1/T1 Port	Chapter 6	Agent	Statistics ➡Current
Viewing Intervals Statistics for an E1/T1 Port	Chapter 6	Agent	Statistics ➡Intervals
Viewing Data Stream Statistics for a Channel E1/T1 Port	Chapter 5	Agent	Statistics ➡Data Stream
Viewing Receive Statistics for a LAN Port	Chapter 6	Agent	Statistics ➡Lan Statistics ➡Rx Frame Types (Vmux-110 Version 1.1 or greater)
Viewing Transmit Statistics for a LAN Port	Chapter 6	Agent	Statistics ➡Lan Statistics ➡Tx Frame Types (Vmux-110 Version 1.1 or greater)
Viewing Error Statistics for a LAN Port	Chapter 6	Agent	Statistics ➡Lan Statistics ➡Errors (Vmux-110 Version 1.1 or greater)
Viewing Frame Size Statistics for a LAN Port	Chapter 6	Agent	Statistics ➡Lan Statistics ➡Frame Sizes (Vmux-110 Version 1.1 or greater)
Viewing Statistics for an E1/T1 or a Serial Port Link	Chapter 6	Agent	Statistics ➡Link Statistics



# Chapter 3

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## Configuration Management

This chapter describes how to configure Vmux-110 on all levels, including system and port, and contains the following sections:

- Setting the System Parameters
  - Configuring System Information
  - Setting Port User Information
  - Configuring System Parameters
  - Selecting the Date Format
  - Setting the Date and Time
  - Configuring the Manager List
- Setting the Operational Parameters
  - Configuring Signaling Profile Parameters
  - Configuring Bridge Ports
  - Configuring the VLAN Table
  - Configuring FXS Timeouts and Cadences
  - Configuring Vmux-110 Ports
- Additional Tasks
  - Displaying Vmux-110 Host IP Information
  - Displaying Analog Voice Port Status
  - Displaying Link E1/T1 Port Time Slot Assignments
  - Displaying Voice Port Time Slot Assignments
  - Displaying Bundle Connection Parameters
  - Reading (Uploading) the Agent Configuration
  - Updating (Downloading) the Configuration to the Agent
  - Resetting Vmux-110 to the Default Configuration
  - Polling the Agent
  - Resetting Vmux-110

---

**Note**

*Access Agent mode by selecting the bottom image of the device.  
Access Edit mode by selecting the top image of the device.*

---

## 3.1 Setting the System Parameters

### Configuring System Information

The **System Info** command enables you to view and set system information for the Vmux-110 device. This information is useful for identifying multiple Vmux-110 units and for tracking their locations and administrative contacts.

► To view and set system information:

1. In Edit mode (for viewing) or Agent mode (for setting), select the device.
2. From the **Configuration** menu, select **System Info**.
3. Configure the desired parameters and click <Set>.

[A.1] 172.17.158.14 : System Information

Description : Vmux-110 HW Version : 1.00 , SW Version : 4.00T1.

Object ID : Vmux110

Name : Vmux-110

Contact : Yaira

Location : The location of this device

System Up Time : 3 days 01:29:56

Number of Interfaces : 11

Set Cancel Refresh

Get successful

Figure 3-1. System Information Dialog Box – Agent Mode

*Table 3-1. System Information Parameters*

Parameter	Possible Values/Remarks
Description	A description of the device, including hardware and software versions
Object ID (Agent mode only)	The device's SNMP Object ID (without the "rad" prefix
Name	The name of the device, a string of up to 12 characters
Contact	The name of the person responsible for the functioning of this device, a string of up to 32 characters
Location	The exact location of this device, a string of up to 32 characters
System Up Time (Agent mode only)	The amount of time that elapsed since this device was initialized or reset. Format: XX Days HH:MM:SS
Number of Interfaces (Agent mode only)	The number of physical and logical interfaces on this device
[Set] (Agent mode only)	Click <Set> to save System Information settings
[Cancel] (Agent mode only)	Click <Cancel> to cancel the selections made in the dialog box and close the box
[Refresh] (Agent mode only)	Click <Refresh> to update the System Information
[Close] (Edit mode only)	Click <Close> to close the System Information dialog box

## Setting Port User Information

The **User Info** command enables you to assign user information for a port. This information is useful for keeping track of contact information specific to each port.

➤ **To change port user information parameters:**

1. In Edit mode, select a port.
2. From the **Configuration** menu, select **User Info**.
3. Configure User Name and User Info.
4. Click <Set>.

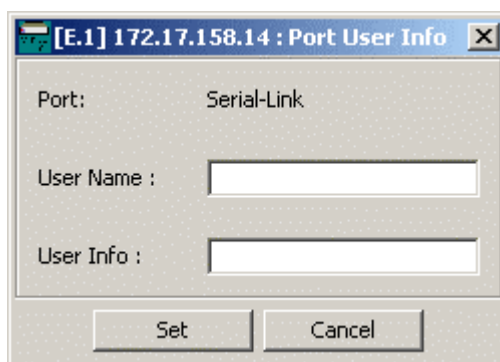


Figure 3-2. Port User Info Dialog Box

Table 3-2. Port User Info Parameters

Parameter	Possible Values / Remarks
Port	For ETH port: <b>ETH-NET</b> , <b>ETH-USER</b> For Link E1 port: <b>Link E1</b> For Link T1 port: <b>Link T1</b> For Channel E1 port: <b>Channel E1</b> For Channel T1 port: <b>ChannelT1</b> For FXS port: <b>FXS-1</b> , ..., <b>FXS-8</b> For FXO port: <b>FXO-1</b> , ..., <b>FXO-8</b> For E&M port: <b>E&amp;M-1</b> , ..., <b>E&amp;M-8</b> For Serial Link port: <b>Serial Link</b>
User Name	User supplied name whose maximum length is 15 characters
User Info	User supplied information whose maximum length is 70 characters
[Set]	Click < <b>Set</b> > to send new values to the agent
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

## Configuring System Parameters

The **System Parameters** command enables you to view and set major system parameters for the Vmux-110 device. You can configure parameters such as whether the device contains an E1 or T1 port, and which port should be used as the "connect through" or "main link" port. The router function is not supported in this version of RADview.

➤ **To view and set system parameters:**

1. In Agent mode (for viewing) or Edit mode (for setting), select the device.
2. From the Configuration menu, select **System Parameters**.
3. Configure the desired parameters and click <**Set**>.

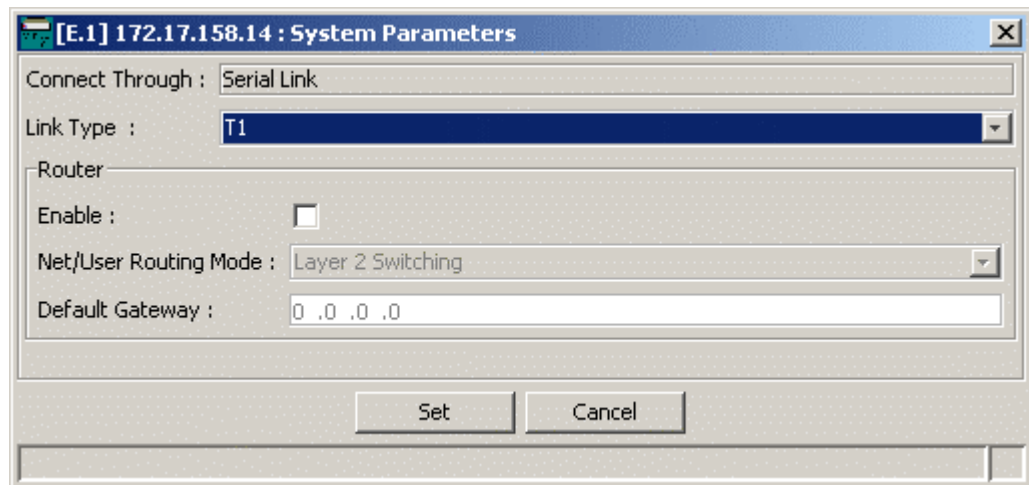
**Note**

*Some configuration selections may produce a second, confirmation dialog box to verify the configuration settings.*

*If you receive the following error message:*

*"Cannot change Link Type. Link TSA and/or Voice Bundles exist. Removing them can be done only via the Service Center."*

- *In order to remove a Link TSA via the Service Center:  
In the Service Center, from the Channel List, click <Remove>.*
- *In order to remove a Voice Bundle via the Service Center:  
In the Service Center, from the Circuit List or the Channel Circuit List, click <Remove>.*



*Figure 3-3. System Parameters Dialog Box – Edit Mode*

Table 3-3. System Parameters

Parameter	Possible Values/Remarks
Connect Through	ETH-NET, Serial Link, Link E1/T1 Default: <b>Serial Link</b> <i><b>Note:</b> In the CLI this parameter is called "Main Link".</i>
Link Type	<b>E1, T1</b> Default: <b>E1</b>
<b>Router</b>	<i><b>Note:</b> The router function is <b>NOT</b> supported in this version of RADview.</i>
Enable	<b>Checked, Unchecked</b> Default: <b>Unchecked</b>
Net/User Routing Mode (enabled only when Router is Enabled and Connect Through is Serial Link or Link E1/T1)	<b>Layer 2 Switching, Layer 3 Routing</b> Default: <b>Layer 2 Switching</b> <i><b>Note:</b> When Router is enabled and Connect Through is <b>ETH</b>, then Net/User Routing Mode is <b>Layer 3 Routing</b>.</i>
Default Gateway (enabled only if Router is enabled (Enable is checked))	The IP address of the next hop <b>0.0.0.0–255.255.255.255</b> Default: <b>0.0.0.0</b> (Router Default Gateway is disabled)
[Set]	Click < <b>Set</b> > to save System Parameters settings
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

## Selecting the Date Format

The **Date Format** command enables you to select the format in which you want the system date to appear in all dialog boxes.

➤ **To set the date format:**

1. In Agent mode only, select the device.
2. From the **Configuration** menu, select **Date Format**.
3. Select a date format from the dropdown menu. Possible formats are:
  - DD-MM-YYYY
  - MM-DD-YYYY
  - YYYY-MM-DD

## Setting the Date and Time

The **Date & Time** command enables you to adjust the system clock.

➤ **To set the system date and time:**

1. In Agent mode only, select the device.
2. From the **Configuration** menu, select **Date & Time**.



3. Configure the desired parameters and click <Set>.

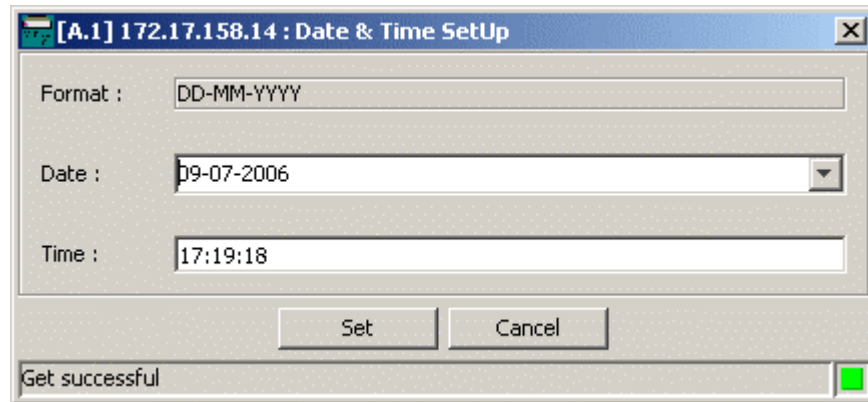


Figure 3-4. Date & Time Setup Dialog Box

Table 3-4. Date & Time Setup Parameters

Parameter	Possible Values / Remarks
Format	Date format selected with the <b>Date Format</b> command
Date	System date in the format selected
Time	System time in HH:MM:SS format
[Set]	Click < <b>Set</b> > to send new values to the agent
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

## Configuring the Manager List

In order to remotely configure Vmux-110, the IP address of the NMS must be listed in the Manager List. The **Manager List** command enables you to display and configure the Manager List, where you designate the destination NMS stations for SNMP traps.

- **To configure the manager list:**
  1. In Agent mode, select the device.
  2. From the **Options** menu, select **Manager List**.
  3. Configure the desired parameters and click <Set>.

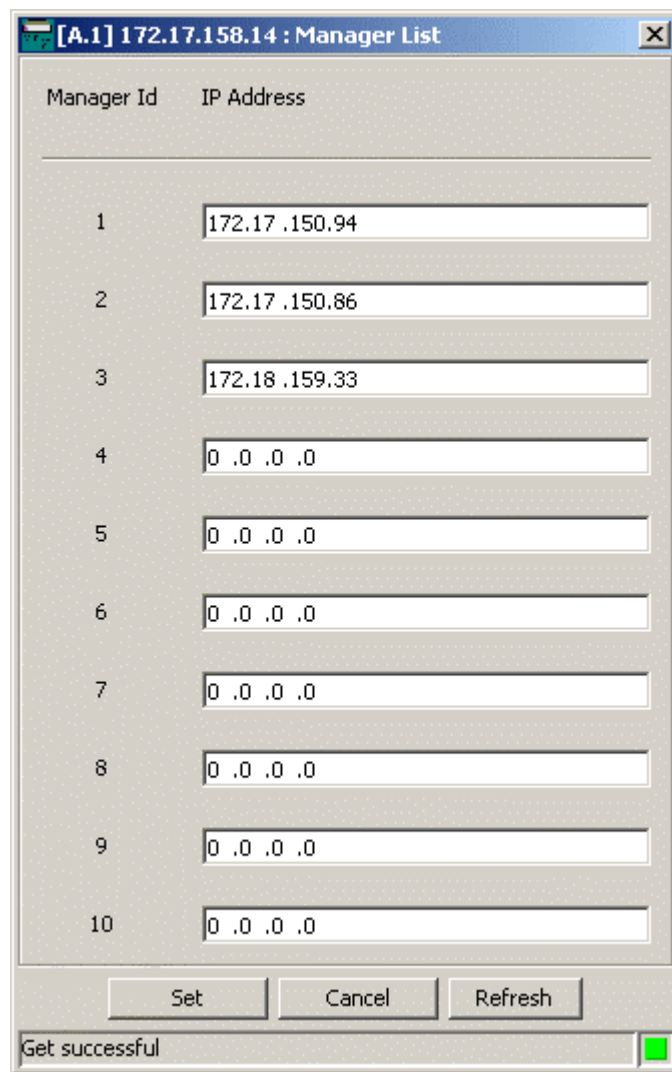


Figure 3-5. Manager List Dialog Box

Table 3-5. Manager List Parameters

Parameter	Possible Values / Remarks
Manager ID	<b>1..10</b>
IP Address	An IP address of 0.0.0.0 means that there is no manager
[Set]	Click < <b>Set</b> > to send new values to the Agent
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box
[Refresh]	Click < <b>Refresh</b> > to refresh the data in the Manager List dialog box

---

## 3.2 Setting the Operational Parameters

### Configuring Signaling Profile Parameters

The **Signaling Profile** command enables you to view or configure the system's signaling profiles. If you are using CAS signaling, you must configure the Vmux-110 signaling system to make it compatible with the signaling method used by the PBXs connected to the voice channel E1/T1 port. The management software allows you to manipulate the ABCD signaling bits and methods of representation of the idle code and out-of-service signals generated by the PBXs. Signaling conversion is used to connect to PBXs that use different signaling formats.

You can store up to five signaling profiles; Vmux-110 uses only one of them at a time.

---

**Note**

- *The **Signaling Profile** menu only exists for devices that feature Channel E1 or Channel T1 ports.*
  - *A signaling profile translates bits from the network side to the user side.*
  - *Signaling profile configuration is available only for units operating with CAS signaling.*
- 

A signaling profile is comprised of 6 parameters, or "nibbles". Each parameter is composed of three Octets, constructed from the following list:

- 0 hex = 0000 = 0
- 1 hex = 0001 = 1
- 2 hex = 0010 = A bit
- 3 hex = 0011 = B bit
- 4 hex = 0100 = C bit
- 5 hex = 0101 = D bit
- 6 hex = 0110 = Inverse A
- 7 hex = 0111 = Inverse B
- 8 hex = 1000 = Inverse C
- 9 hex = 1001 = Inverse D

### Viewing Signaling Profile Parameters

- To view signaling profile parameters:
1. In either Agent or Edit mode, select the device.
  2. From the Configuration menu, select Signaling Profile....

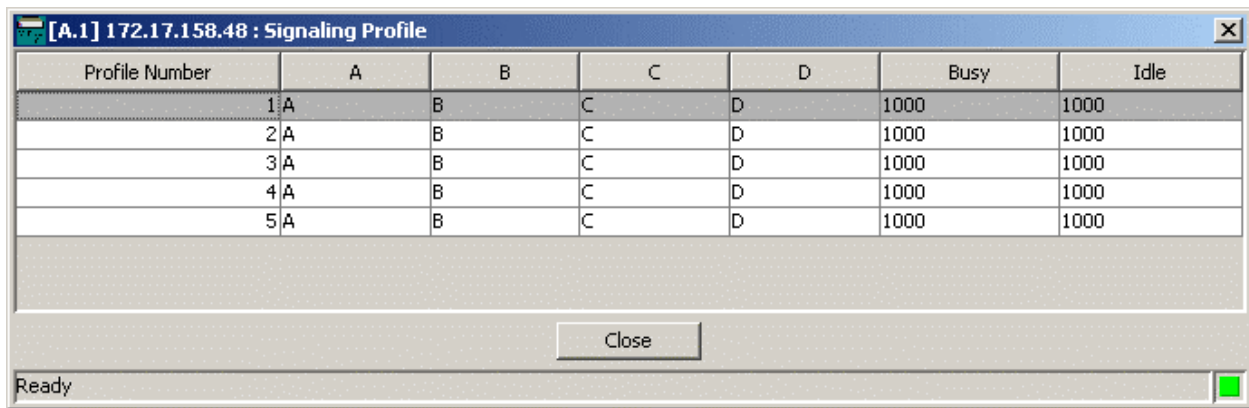


Figure 3-6. Signaling Profile Dialog Box

Table 3-6. Signaling Profile Parameters

Parameter	Possible Values / Remarks
Profile Number	The identification number assigned to each signaling profile. <b>1....5</b>
A	<b>A, B, C, D, Inverse A, Inverse B, Inverse C, Inverse D, 1, 0</b> Default: <b>A</b>
B	<b>A, B, C, D, Inverse A, Inverse B, Inverse C, Inverse D, 1, 0</b> Default: <b>B</b>
C	<b>A, B, C, D, Inverse A, Inverse B, Inverse C, Inverse D, 1, 0</b> Default: <b>C</b>
D	<b>A, B, C, D, Inverse A, Inverse B, Inverse C, Inverse D, 1, 0</b> Default: <b>D</b>
Busy	Tone value for busy signal. <b>0000....1111</b> Default: <b>1000</b> Applicable only for Rx translation
Idle	Tone value for idle signal. <b>0000....1111</b> Default: <b>1000</b> Applicable only for Rx translation
[Change] [In Signaling Profile table]	Click < <b>Change</b> > to change the value of a selected entry. This button is enabled only when a table entry is selected.
[Close] [In Signaling Profile table]	Click < <b>Close</b> > to close the dialog box.
[Set] [In Change Profile Data dialog box]	Click < <b>Set</b> > to confirm the new value of a selected entry.
[Cancel] [In Change Profile Data dialog box]	Click < <b>Cancel</b> > to close the dialog box without changing any settings.

## Changing Signaling Profile Data

► To change signaling profile parameters:

1. In Edit mode only, select the device.
2. From the Configuration menu, select **Signaling Profile.....**

The **Signaling Profile** dialog box (*Figure 3-6*) opens.

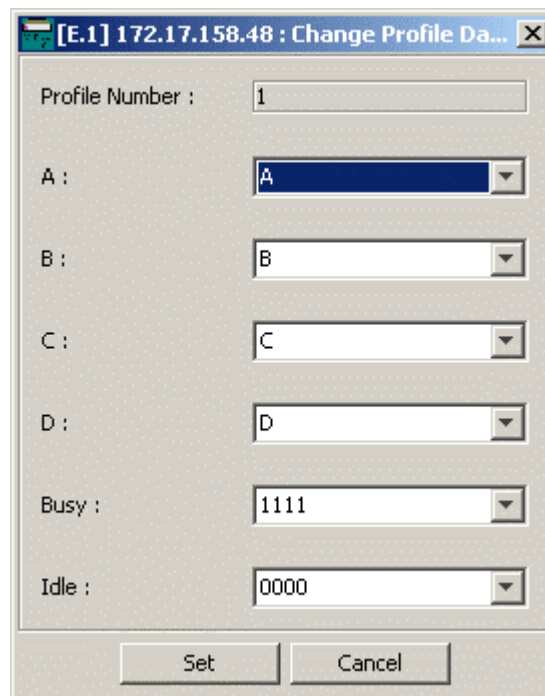
3. Select the row of the signaling profile that you would like to change.
4. Click <**Change...**>.

The **Change Profile Data** dialog box (*Figure 3-7*) opens. The parameters in this dialog box are listed in *Table 3-6*.

5. Configure the desired parameters and click <**Set**>.

The changes are added to the NMS database, and the **Change Profile Data** dialog box closes.

6. Click <**Close**> to close the **Signaling Profile** dialog box.



*Figure 3-7. Change Profile Data Dialog Box*

## Configuring Bridge Ports

The **Bridge Ports** command enables you to configure the VLAN filtering, VLAN priority, and VLAN tag handling of the Vmux-110 bridge. Separate tabs control the configuration for the ETH-NET port, ETH-USER port, and the Link/Channel+Mng (Internal CPU) interface. For example: you can use this dialog to configure a port to automatically add a single VLAN to received packets, or to double tag (double stack) the packets before forwarding them to the destination.

**Note**

- *Bridging connects (bridges) network segments together to provide Layer 2 (data-link level) switching.*
- *The Link/Channel+Mng (Management) interface refers to a virtual port, which is also known as the CPU port or the Internal port (in the CLI). The CPU "port" processes the packets received from the user port and the network port.*

**► To configure bridge ports:**

1. In Agent mode (for viewing) or Edit mode (for setting), select the device.
2. From the Configuration menu, select Bridge Ports....

The Bridge Ports Configuration Dialog Box appears.

3. Click the tab that corresponds to the port that you want to configure (the ETH-NET tab, ETH-USER tab, or Link/Channel+Mng tab).
4. Configure the desired parameters and then click <Set>.
5. If a confirmation dialog box appears, click <OK>.

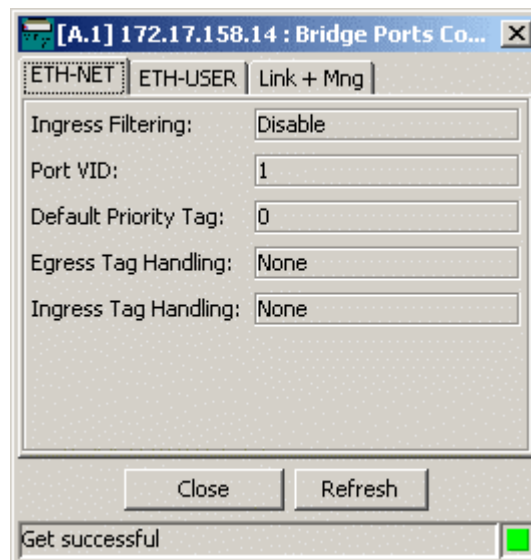


Figure 3-8. Bridge Ports Configuration Dialog Box

Table 3-7. Bridge Ports Configuration Parameters

Parameter	Possible Values/Remarks
Ingress Filtering	When Ingress Filtering is enabled, Vmux-110 discards incoming frames for VLANs that do not include this port in its member set. When Ingress Filtering is disabled, the port accepts all incoming frames. This control does not affect VLAN independent BPDU frames, such as GVRP and STP. It does affect VLAN dependent BPDU frames, such as GMRP. <b>Enable, Disable</b> Default: <b>Disable</b>
Port VID	The PVID or VLAN ID that is assigned to untagged frames or Priority-Tagged frames received on this port. <b>1..4094</b> Default: <b>1</b>
Default Priority Tag	The default ingress User Priority for this port. This only affects media, such as Ethernet, that do not support native User Priority. <b>0..7</b> Default: <b>0</b>
Egress Tag Handling	How the Egress VLAN Tag is processed. It is mainly for use with Double Tagging. <b>None, Stacking</b> Default: <b>None</b>
Ingress Tag Handling	How the Ingress VLAN Tag is processed. It is mainly for use with Double Tagging. <b>None, Stripping</b> Default: <b>None</b>
[Close]	Click < <b>Close</b> > to close the dialog box.
[Refresh]	Click < <b>Refresh</b> > to re-load and display the current parameters.
[Set]	Click < <b>Set</b> > to save the changes.
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

**Note**

*The Link/Channel+Mng tab is only enabled when the router is disabled.*

## Configuring the VLAN Table

The **VLAN Table** command enables you to configure the list of virtual LANs (VLANs). A VLAN is a logical (virtual) network of devices that behave as if they are on the same physical LAN segment, even if they are physically connected to different network segments. In addition, multiple VLANs can co-exist on the same switching hardware, providing a form of logical network segmentation.

**Note**

*The VLAN Table is unavailable when either of the following is true:*

- *The router is enabled, the Net/User Routing Mode is Layer 3 Routing, and the Connect Through value is Serial Link or Link E1/T1.*
- *The router is enabled and the Connect Through value is ETH-NET.*
- *The VLAN Table menu option is not displayed when the Vmux-110 hardware version is less than 1.10.*

► **To view the VLAN Table:**

1. In Agent mode (for viewing) or Edit mode (for setting), select the device.
2. From the **Configuration** menu, select **VLAN Table**.

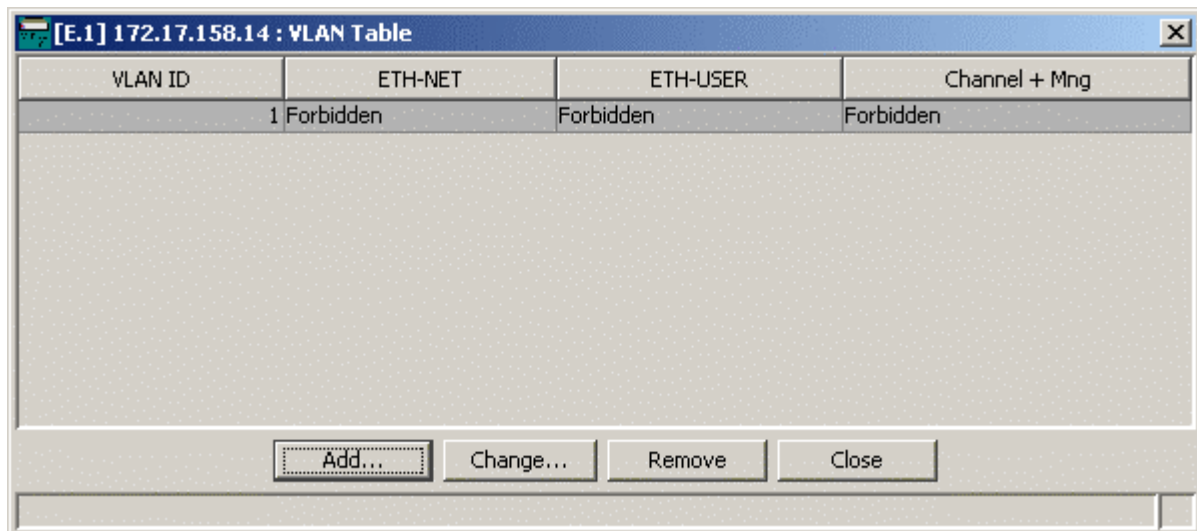


Figure 3-9. VLAN Table – Edit Mode



Table 3-8. VLAN Table Parameters

Parameter	Possible Values / Remarks
VLAN ID	<b>1..4094</b> Default: <b>1</b>
ETH-Net	<b>Transparent</b> – This port transmits egress packets for this port as unmodified <b>Forbidden</b> – This port is prohibited from being included in the egress list for this VLAN <b>Untagged</b> – This port transmits egress packets for this VLAN as untagged <b>Tagged</b> – This port transmits egress packets for this port as tagged Default: <b>Forbidden</b>
ETH-User	<b>Transparent</b> – This port transmits egress packets for this port as unmodified <b>Forbidden</b> – This port is prohibited from being included in the egress list for this VLAN <b>Untagged</b> – This port transmits egress packets for this VLAN as untagged <b>Tagged</b> – This port transmits egress packets for this port as tagged Default: <b>Forbidden</b>
Link Mng OR Channel Mng (available if Connect Through is Link E1/T1 or Serial Port)	<b>Transparent</b> – This port transmits egress packets for this port as unmodified <b>Forbidden</b> – This port is prohibited from being included in the egress list for this VLAN <b>Untagged</b> – This port transmits egress packets for this VLAN as untagged <b>Tagged</b> – This port transmits egress packets for this port as tagged Default: <b>Forbidden</b>
[Add]	Click < <b>Add</b> > to add an entry to the VLAN table.
[Change]	Click < <b>Change</b> > to change the parameter values of an entry in the VLAN table.
[Remove]	Click < <b>Remove</b> > to remove an entry from the VLAN table.
[Apply] (in Add VLAN table only)	Click < <b>Apply</b> > to save new parameter values and add an entry to the VLAN table.
[Set] (in Change VLAN table only)	Click < <b>Set</b> > to save new parameter values for an entry in the VLAN table.
[Close]	Click < <b>Close</b> > to close the dialog box.

### ***Adding an Entry to the VLAN Table***

➤ **To add an entry to the VLAN table:**

1. In Edit mode, in the VLAN Table dialog box, click <**Add**>.
2. Configure the desired parameters in the **Add VLAN** dialog box (see the following table).
3. Click <**Apply**> to save the new values.
4. Click <**Close**> to close the **Add VLAN** dialog box and return to the VLAN Table dialog box.

**Note** You can add up to ten entries.

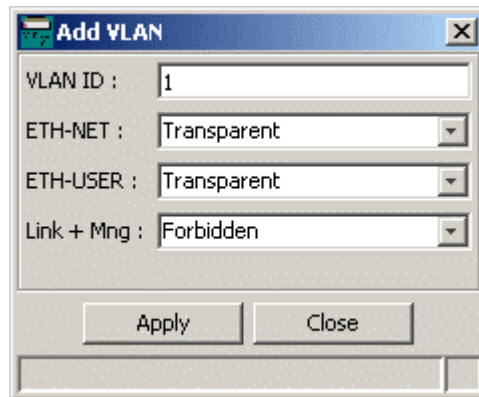


Figure 3-10. Add VLAN Entry Dialog Box

### Changing an Entry in the VLAN Table

- To reconfigure an entry in the VLAN table:
  1. In the VLAN Table dialog box, select an entry from the VLAN Table and click <Change>.
  2. Configure the desired parameters in the **Change VLAN** dialog box (see [Table 3-8](#)).
  3. Click <Set> to save the new values and return to the VLAN Table dialog box.  
A confirmation dialog box appears.
  4. Click <OK> to save the changed values and return to the VLAN Table dialog box.

### Removing an Entry from the VLAN Table

- To remove an entry from the VLAN table:
  1. Select an entry from the VLAN Table.
  2. Click <Remove>.

## Configuring FXS Timeouts and Cadences

The **Timeouts & Cadences...** command enables you to configure timeout and cadence values for a specific FXS port. The ringer cadences determine the lengths of the ring tones and the silences in between. Use the FXS Timeouts and Cadences dialog box to configure the on/off timing characteristics of the ring signal, as well as the ring and flash timeouts, to match the local standards or to provide a custom ring signal for the line.

**Note** The *Timeouts & Cadences* option is available only when the device includes FXS ports.

- To configure FXS Timeouts & Cadences values:
  1. In Agent mode (for viewing) or Edit mode (for setting), select the device.

2. From the Configuration menu, select Analog Voice > Timeouts & Cadences
3. Configure the desired parameters and click <Set>.

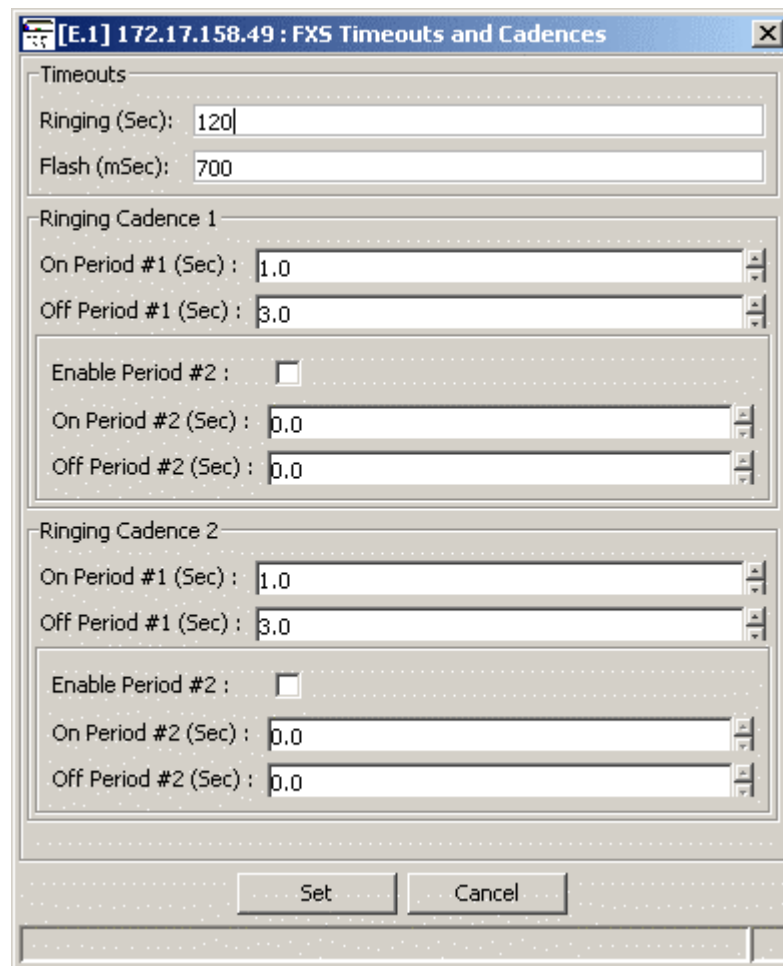


Figure 3-11. FXS Timeouts and Cadences Dialog Box

Table 3-9. FXS Timeouts and Cadences Parameter

Parameter	Possible Values / Remarks
<b>Timeouts</b>	
Ringing (Sec)	<b>60..600</b> Default: <b>120</b>
Flash (mSec)	<b>10..2000</b> Default: <b>700</b>
<b>Ringling Cadence 1</b>	
On Period #1 (Sec)	<b>0.1..5.0</b> Default: <b>1.0</b>
Off Period #1 (Sec)	<b>0.1..5.0</b> Default: <b>3.0</b>
Period #2 Enabled	Checked, Unchecked When checked, Period #2 is enabled
On Period #2 (Sec)	<b>0.1..5.0</b> Default: <b>1.0</b> <i><b>Note:</b> This parameter is enabled when Period #2 is enabled.</i>
Off Period #2 (Sec)	<b>0.1..5.0</b> Default: <b>3.0</b> <i><b>Note:</b> This parameter is enabled when Period #2 is enabled.</i>
<b>Ringling Cadence 2</b>	
On Period #1 (Sec)	<b>0.1..5.0</b> Default: <b>1.0</b>
Off Period #1 (Sec)	<b>0.1..5.0</b> Default: <b>3.0</b>
Period #2 Enabled	Checked, Unchecked When checked, Period #2 is enabled
On Period #2 (Sec)	<b>0.1..5.0</b> Default: <b>1.0</b> <i><b>Note:</b> This parameter is enabled when Period #2 is enabled.</i>
Off Period #2 (Sec)	<b>0.1..5.0</b> Default: <b>3.0</b> <i><b>Note:</b> This parameter is enabled when Period #2 is enabled.</i>
[Refresh]	Click < <b>Refresh</b> > to refresh the data displayed in the dialog box.
[Close]	Click < <b>Close</b> > to close the FXS Timeouts and Cadences dialog box
[Set] (Edit mode)	Click < <b>Set</b> > to update the FXS Timeouts and Cadences information with the new values
[Cancel] (Edit mode)	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

## Configuring Vmux-110 Ports

### Configuring Port Information

The **Port Info** command enables you to view general information about the selected port, and to configure the various parameters of the port (the port's software configuration). The parameters vary according to the port type.

► **To view or set port information:**

1. In Agent mode (for viewing) or Edit mode (for Setting), select a port.
2. From the **Configuration** menu, select **Port Info**.

or

From the toolbar, click .

The Port Information Dialog Box appears.

3. Click either the **Info** tab or the **SW Cfg** tab to view or set the desired information.

**Note**

*The **Info** tab only appears in Agent mode.*

4. Configure the desired parameters (the following tables describe the Port Information parameters).
5. Click **<Set>**.
6. If a confirmation dialog box appears, click **<OK>** to save the changes.

For	See
General port information (Agent mode only)	<a href="#">Figure 3-12</a> and <a href="#">Table 3-10</a>
ETH port software configuration	<a href="#">Figure 3-13</a> and <a href="#">Table 3-11</a>
Link E1 port software configuration	<a href="#">Figure 3-14</a> and <a href="#">Table 3-12</a>
Link T1 port software configuration	<a href="#">Figure 3-15</a> and <a href="#">Table 3-13</a>
Channel E1 port software configuration	<a href="#">Figure 3-16</a> and <a href="#">Table 3-14</a>
Channel T1 port software configuration	<a href="#">Figure 3-17</a> and <a href="#">Table 3-15</a>
Analog Voice port software configuration	<a href="#">Figure 3-18</a> and <a href="#">Table 3-16</a>
Serial link software configuration	<a href="#">Figure 3-19</a> and <a href="#">Table 3-17</a>

**General Port Information**

[A.1] 172.17.158.14 : Port Information

Info SW Cfg

Port : Link T1

Operational Status : Down

Alarm Status : Off

Interface Desc : T1 port

Close Refresh

Get successful

*Figure 3-12. Port Information Info Tab*

Table 3-10. Port Information Info Tab Parameters

Parameter	Possible Values / Remarks
Port/Port Type	For ETH port: <b>ETH-NET</b> , <b>ETH-USER</b> For E1 port: <b>Link E1</b> For T1 port: <b>Link T1</b> For Channel E1 port: <b>Channel E1</b> For Channel T1 port: <b>Channel T1</b> For Analog Voice port: <b>FXS-1..FXS-8</b> , <b>FXO-1..FXO-8</b> , <b>E&amp;M-1..E&amp;M-8</b> For Serial Link port: <b>Serial Link</b>
Operational Status	<b>Up</b> , <b>Down</b> , <b>In Test</b> (In Test is not available for Serial ports)
Alarm Status (not available for Analog Voice port)	<b>Off</b> , <b>Event</b> , <b>Minor</b> , <b>Major</b> , <b>Warning</b> , <b>Critical</b>
Interface Desc	A description of the interface
[Close]	Click < <b>Close</b> > to close the Port Information dialog box
[Refresh]	Click < <b>Refresh</b> > to refresh the data in the Port Information dialog box

### ETH Port Software Configuration

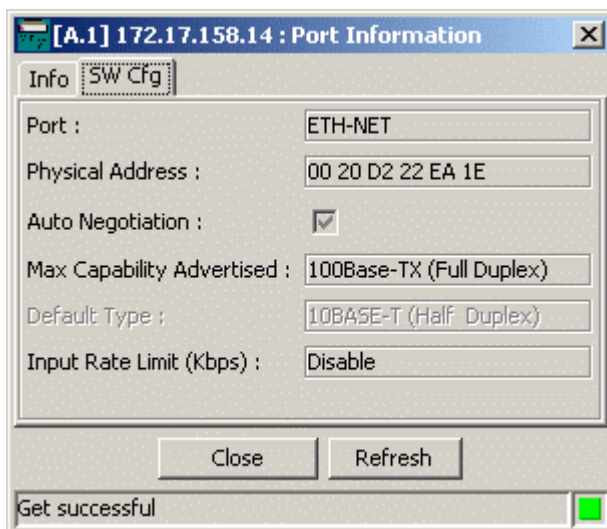


Figure 3-13. ETH Port SW Cfg Tab

*Table 3-11. ETH Port SW Cfg Tab Parameters*

Parameter	Possible Values / Remarks
Port	ETH-NET, ETH-USER
Physical Address (Agent Mode only)	MAC Address - 6 Octets
Auto Negotiation	Whether Auto Negotiation is enabled Default: <b>Enabled</b>
Max Capability Advertised	<b>10BASE-T (Half Duplex)</b> <b>10BASE-T (Full Duplex)</b> <b>100BASE-TX (Half Duplex)</b> <b>100BASE-TX (Full Duplex)</b> Default: <b>100BASE-TX (Full Duplex)</b>
Default Type	Defines the rate and duplex mode of an ETHERNET port Applicable only when Auto Negotiation is disabled <b>10BASE-T (Half Duplex)</b> <b>10BASE-T (Full Duplex)</b> <b>100BASE-TX (Half Duplex)</b> <b>100BASE-TX (Full Duplex)</b> Default: <b>100BASE-TX (Full Duplex)</b>
Input Rate Limit (Kbps)	<b>Disabled</b> , 128, 256, 512, 1024, 2048, 4096, 8192 Default: <b>Disabled</b>
[Set]	Click < <b>Set</b> > to save the new values in the Port Information dialog box
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box
[Close]	Click < <b>Close</b> > to close the Port Information dialog box
[Refresh]	Click < <b>Refresh</b> > to refresh the data in the Port Information dialog box



**Link E1 Port Software Configuration**

The screenshot shows a configuration window titled "[E.1] 172.17.158.49 : Port Information". Inside the window, there is a tab labeled "SW Cfg". The configuration parameters are as follows:

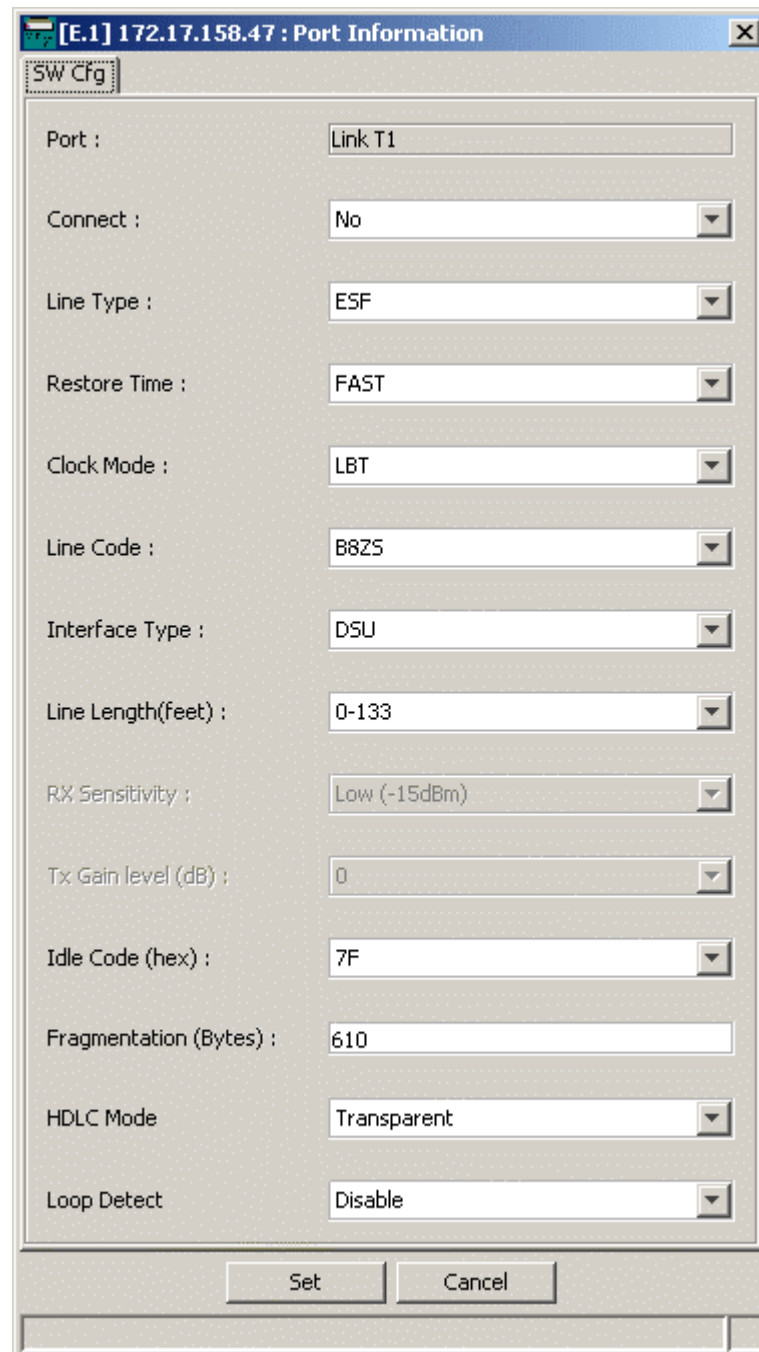
Parameter	Value
Port :	Link E1
Connect :	No
Line Type :	E1-CRC (G.732NCRC)
Restore Time :	CCITT G.732
Clock Mode :	LBT from User port
Interface Type :	LTU
Line Impedance :	Balanced
Idle Code (hex) :	F9
Fragmentation (Bytes)	610
HDLC Mode	Cisco Bridged ETH
Loop Detect	Disable

At the bottom of the window, there are two buttons: "Set" and "Cancel".

*Figure 3-14. Link E1 Port SW Cfg Tab*

Table 3-12. Link E1 Port SW Cfg Tab Parameters

Parameter	Possible Values / Remarks
Port	<b>Link E1</b>
Connect	Indicates whether the port should be considered in any of the Vmux algorithms <b>No, Yes</b> Default: <b>No</b>
Line Type	The line type of the interface <b>E1 (G.732N), E1-CRC (G.732NCRC), E1-MF (G.732S), E1-CRC-MF (G.732SCRC), Unframed</b> Default: <b>E1 (G.732N)</b>
Restore Time	The time required to restore normal service after the end of a loss of synchronization condition <b>FAST, TR-62411, CCITT G.732</b> Default: <b>FAST</b> <i><b>Note:</b> This parameter is disabled when the Line Type is set to Unframed.</i>
Clock Mode	Defines the clock operation mode of the interface <b>LBT (loop back timing), Internal, LBT from Channel</b> Default: <b>LBT</b>
Interface Type	Interface type <b>DSU, LTU</b> Default: <b>DSU</b>
Line Impedance	<b>Unbalanced (75 Ohm), Balanced (120 Ohm)</b> Default: <b>Balanced</b>
Idle Code (hex)	Hexadecimal code transmitted to fill idle (unused) time slots in frames transmitted through the selected port <b>00..FF</b> Default: <b>FF</b> <i><b>Note:</b> The following values are not allowed: 0H, 8H, 10H, 12H, 21H, 24H, 42H, 49H, 84H, 92H</i>
Fragmentation (Bytes)	200...610...1550 Default: <b>610</b>
HDLC Mode	<b>Transparent, Cisco Bridged ETH</b> Default: <b>Transparent</b>
Loop Detect	Enables/disables Loop Detection on the TDM Uplink <b>Disable, Enable</b> Default: <b>Disable</b> <i><b>Note:</b> This parameter is disabled when HDLC Mode is set to Cisco Bridged ETH.</i>
[Set]	Click < <b>Set</b> > to save the new values in the dialog box
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

**Link T1 Port Software Configuration**

The screenshot shows a configuration window titled "[E.1] 172.17.158.47 : Port Information" with a tab labeled "SW Cfg". The window contains the following configuration parameters:

Parameter	Value
Port :	Link T1
Connect :	No
Line Type :	ESF
Restore Time :	FAST
Clock Mode :	LBT
Line Code :	B8ZS
Interface Type :	DSU
Line Length(feet) :	0-133
RX Sensitivity :	Low (-15dBm)
Tx Gain level (dB) :	0
Idle Code (hex) :	7F
Fragmentation (Bytes) :	610
HDLC Mode	Transparent
Loop Detect	Disable

At the bottom of the window are two buttons: "Set" and "Cancel".

*Figure 3-15. Link T1 Port SW Cfg Tab*

Table 3-13. Link T1 SW Cfg Tab Parameters

Parameter	Possible Values / Remarks
Port	<b>Link T1</b>
Connect	<b>No, Yes</b> Default: <b>No</b>
Line Type	The line type of the interface <b>SF (D4), ESF</b> Default: <b>ESF</b>
Restore Time	The time required to restore normal service after the end of a loss of synchronization condition <b>FAST, TR-62411</b> Default: <b>FAST</b>
Clock Mode	Defines the clock operation mode of the interface <b>LBT</b> (loop back timing), <b>Internal, LBT from Channel</b> Default: <b>LBT</b>
Line Code	Line coding method used for zero suppression <b>B8ZS, TRANS (AMI)</b> Default: <b>B8ZS</b> coding. A specified pattern of normal bits and bipolar variations replaces a sequence of 8 zero bits. This option provides clear channel capability
Interface Type	<b>DSU, CSU</b> Default: <b>DSU</b>
Line Length (feet)	Length of the cable connecting the T1 port and the network entry point. This parameter affects the transmit signal mask required to meet DSX-1 requirements, as specified by AT&T CB-119, or operation requirements of FCC Rules Part 68A. <b>0-133, 134-266, 267-399, 400-533, 534-655</b> Default: <b>0-133</b> <i>Disabled when Interface Type is set to CSU</i>
RX Sensitivity (dBm)	<b>Low</b> (-15 dBm), <b>High</b> (-36 dBm) Default: <b>Low</b> <i>Disabled when Interface Type is set to DSU</i>
TX Gain level (dBm)	The selected attenuation value brings your signal level closer to the expected repeater signal level on the cable. <b>0, -7.5, -15.0, -22.5</b> Default: <b>0</b> <i>Disabled when Interface Type is set to DSU</i>
Idle Code (hex)	Hexadecimal code transmitted to fill idle (unused) time slots in frames transmitted through the selected port <b>00..FF</b> Default: <b>FF</b> <i><b>Note:</b> The following values are not allowed: 0H, 8H, 10H, 12H, 21H, 24H, 42H, 49H, 84H, 92H</i>
Fragmentation (Bytes)	200...610...1550 Default: <b>610</b>

Table 3-13. Link T1 SW Cfg Tab Parameters (Cont.)

Parameter	Possible Values / Remarks
HDLC Mode	Transparent, Cisco Bridged ETH Default: <b>Transparent</b>
Loop Detect	Enables/disables Loop Detection on the TDM Uplink <b>Disable, Enable</b> Default: <b>Disable</b> <i><b>Note:</b> This parameter is disabled when HDLC Mode is set to Cisco Bridged ETH.</i>
[Set]	Click < <b>Set</b> > to save the new values in the dialog box
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

### Channel E1 Port Software Configuration

The screenshot shows a configuration window for a Channel E1 port. The window has a title bar with the text "[E.1] 172.17.158.48 : Port Information". Below the title bar is a tab labeled "SW Cfg". The main area contains several configuration fields, each with a label and a value or a dropdown menu. The fields are: "Port :" with value "Channel E1"; "Connect :" with value "No"; "Line Type :" with value "E1-MF (G.732S)"; "Restore Time :" with value "FAST"; "Clock Mode :" with value "LBT"; "Interface Type :" with value "DSU"; "Line Impedance :" with value "1"; "Idle Code (hex) :" with value "00"; "Signaling Mode :" with value "CAS"; "SS7 FISU Suppression (%) :" with value "--"; and "Profile Number :" with value "1". At the bottom of the window are two buttons: "Set" and "Cancel".

Figure 3-16. Channel E1 SW Cfg Tab Parameters

Table 3-14. Channel E1 Port SW Cfg Tab Parameters

Parameter	Possible Values / Remarks
Port	<b>Channel E1</b>
Connect	Indicates whether the port should be considered in any of the Vmux algorithms <b>No, Yes</b> Default: <b>No</b>
Line Type	The line type of the interface <b>E1-MF (G.732S), E1 (G.732N), E1-CRC (G.732NCRC), E1-CRC-MF (G.732SCRC)</b> Default: <b>E1 (G.732N)</b>
Restore Time	The time required to restore normal service after the end of a loss of synchronization condition <b>FAST, TR-62411, CCITT G.732</b> Default: <b>FAST</b>
Clock Mode	Defines the clock operation mode of the interface <b>LBT</b> (loop back timing), <b>Internal, LBT from Link</b> Default: <b>LBT</b>
Interface Type	Interface type <b>DSU, LTU</b> Default: <b>DSU</b>
Line Impedance	<b>Unbalanced</b> (75 Ohm), <b>Balanced</b> (120 Ohm) Default: <b>Balanced</b>
Idle Code (hex)	Hexadecimal code transmitted to fill idle (unused) time slots in frames transmitted through the selected port <b>00..FF</b> Default: <b>FF</b>  <i><b>Note:</b> The following values are not allowed: 0H, 8H, 10H, 12H, 21H, 24H, 42H, 49H, 84H, 92H</i>
Signaling Mode	The signaling mode of the Framer module  <b>CAS</b> - Channel Associated Signaling, is a signaling method used for E1 Links. <b>CCS</b> - Common Channel Signaling. The signaling is not within the channel's time slot . Instead, a separate time slot is reserved and used for signaling. Default: <b>CAS</b>  <i><b>Note:</b></i> <ul style="list-style-type: none"> <li>When Line Type is set to <b>E1-MF</b> or <b>E1-CRC-MF</b>, only <b>CAS</b> is available.</li> <li>When Line Type is set to <b>E1</b> or <b>E1-CRC</b>, only <b>CCS</b> is available.</li> </ul>

Table 3-14. Channel E1 Port SW Cfg Tab Parameters (Cont.)

Parameter	Possible Values / Remarks
SS7 FISU Suppression (%)	<p><i>SS7 Suppression is used for SS7 Spoofing. The SS7 spoofing terminates the keep alive messages from the local VMUX without sending them over the network, thus improving the bandwidth utilization.</i></p> <p><i>FISU means Fill in Service Unit -The keep alive that is sent when no one is talking on the line. This object enables the configuration of thepercentage (%) of SS7 Keep Alive packets that will be discarded.</i></p> <p><b>0</b> – No Suppression  <b>10..90</b> (in steps of 10)  Default: <b>0</b> - No Suppression</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• <i>Example: For a value of 10%, 1 keep alive packet will be discarded out of every 10 keep alive packets that were supposed to be sent over the network.</i></li> <li>• <i>When Signaling Mode is set to <b>CAS</b>, this parameter is grayed out and unavailable.</i></li> </ul>
Profile Number	<p>The Signaling Profile of the port.  <b>1..5</b>  Default: <b>1</b></p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• <i>When Signaling Mode is set to <b>CAS</b>, the Profile Number parameter is grayed out and unavailable.</i></li> <li>• <i>When Line Type is set to <b>G.732N</b> (no MF), the signaling profile is not applicable and is ignored.</i></li> </ul>
[Set]	Click < <b>Set</b> > to save the new values in the dialog box
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

**Channel T1 Port Software Configuration**

The screenshot shows a dialog box titled "[E.1] 172.17.158.47 : Port Information" with a close button (X) in the top right corner. Below the title bar is a tab labeled "SW Cfg". The dialog contains a list of configuration parameters, each with a label and a corresponding dropdown menu. The parameters and their current values are: Port : Channel T1; Connect : No; Line Type : ESF; Restore Time : FAST; Clock Mode : LBT; Line Code : B8ZS; Interface Type : DSU; Line Length (feet) : 0-133; Rx Sensitivity : Low (-15dBm); Tx Gain level (dB) : 0; Idle Code (hex) : 7F; Signaling Mode : Robbed Bit; SS7 FISU Suppression (%) : --; TS Rate (Kbps) : 64; Profile Number : 1. At the bottom of the dialog are two buttons: "Set" and "Cancel".

Parameter	Value
Port :	Channel T1
Connect :	No
Line Type :	ESF
Restore Time :	FAST
Clock Mode :	LBT
Line Code :	B8ZS
Interface Type :	DSU
Line Length (feet) :	0-133
Rx Sensitivity :	Low (-15dBm)
Tx Gain level (dB) :	0
Idle Code (hex) :	7F
Signaling Mode :	Robbed Bit
SS7 FISU Suppression (%) :	--
TS Rate (Kbps) :	64
Profile Number :	1

*Figure 3-17. Channel T1 SW Cfg Tab Parameters*



Table 3-15. Channel T1 SW Cfg Tab Parameters

Parameter	Possible Values / Remarks
Port	<b>Channel T1</b>
Connect	<b>No, Yes</b> Default: <b>No</b>
Line Type	The line type of the interface <b>SF (D4), ESF</b> Default: <b>ESF</b>
Restore Time	The time required to restore normal service after the end of a loss of synchronization condition <b>FAST, TR-62411</b> Default: <b>FAST</b>
Clock Mode	Defines the clock operation mode of the interface <b>LBT</b> (loop back timing), <b>Internal, LBT from Link</b> Default: <b>LBT</b>
Line Code	Line coding method used for zero suppression <b>B8ZS, TRANS (AMI)</b> Default: <b>B8ZS</b> coding. A specified pattern of normal bits and bipolar variations replaces a sequence of 8 zero bits. This option provides clear channel capability
Interface Type	<b>DSU, CSU</b> Default: <b>DSU</b>
Line Length (feet)	Length of the cable connecting the T1 port and the network entry point. This parameter affects the transmit signal mask required to meet DSX-1 requirements, as specified by AT&T CB-119, or operation requirements of FCC Rules Part 68A. <b>0-133, 134-266, 267-399, 400-533, 534-655</b> Default: <b>0-133</b> <i>Disabled when Interface Type is set to CSU</i>
RX Sensitivity (dBm)	<b>Low</b> (-15 dBm), <b>High</b> (-36 dBm) Default: <b>Low</b> <i>Disabled when Interface Type is set to DSU</i>
TX Gain level (dBm)	The selected attenuation value brings your signal level closer to the expected repeater signal level on the cable. <b>0, -7.5, -15.0, -22.5</b> Default: <b>0</b> <i>Disabled when Interface Type is set to DSU</i>
Idle Code (hex)	Hexadecimal code transmitted to fill idle (unused) time slots in frames transmitted through the selected port <b>00..FF</b> Default: <b>FF</b> <i>Note: The following values are not allowed:</i> <b>0H, 8H, 10H, 12H, 21H, 24H, 42H, 49H, 84H, 92H</b>

Table 3-15. Channel T1 SW Cfg Tab Parameters (Cont.)

Parameter	Possible Values / Remarks
Signaling Mode	<p>The signaling mode of the Framer module</p> <p><b>CCS</b> - Common Channel Signaling. The signaling is not within the channel's time slot. Instead, a separate time slot is reserved and used for signaling.</p> <p><b>Robbed Bit</b> - Robbed Bit is a signaling method used for T1 links, dedicating 7 bits for voice and 1 bit for signaling.</p> <p>Default: <b>CCS</b></p>
TS Rate (Kbps)	<p><b>56, 64</b></p> <p>Default: <b>64</b></p>
SS7 FISU Suppression (%)	<p><i>SS7 Suppression is used for SS7 Spoofing. The SS7 spoofing terminates the keep alive messages from the local VMUX without sending them over the network, thus improving the bandwidth utilization.</i></p> <p><i>FISU means Fill in Service Unit -The keep alive that is sent when no one is talking on the line. This object enables the configuration of the percentage (%) of SS7 Keep Alive packets that will be discarded.</i></p> <p><b>0</b> – No Suppression</p> <p><b>10..90</b> (in steps of 10)</p> <p>Default: <b>0</b> - No Suppression</p> <p><b>Note:</b></p> <ul style="list-style-type: none"> <li>• <i>Example: For a value of 10%, 1 keep alive packet will be discarded out of every 10 keep alive packets that were supposed to be sent over the network.</i></li> <li>• <i>When Signaling Mode is set to <b>Robbed Bit</b>, this parameter is grayed out and unavailable.</i></li> </ul>
Profile Number	<p>The Signaling Profile of the port.</p> <p><b>1..5</b></p> <p>Default: <b>1</b></p> <p><b>Note:</b> When Signaling Mode is set to <b>CCS</b>, this parameter is grayed out and unavailable.</p>
[Set]	Click < <b>Set</b> > to save the new values in the dialog box
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

### Analog Voice Port Software Configuration

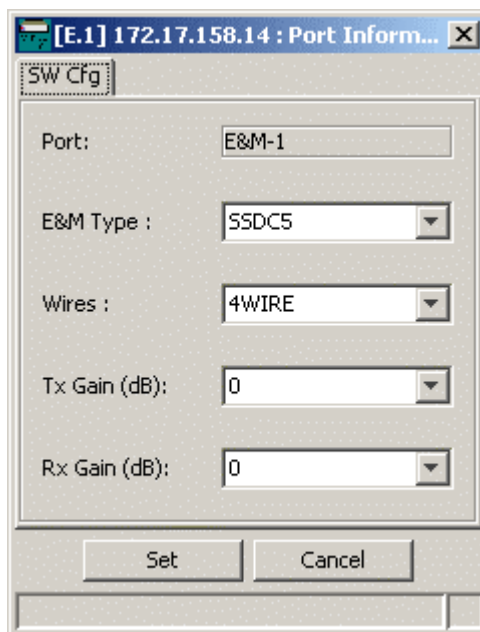
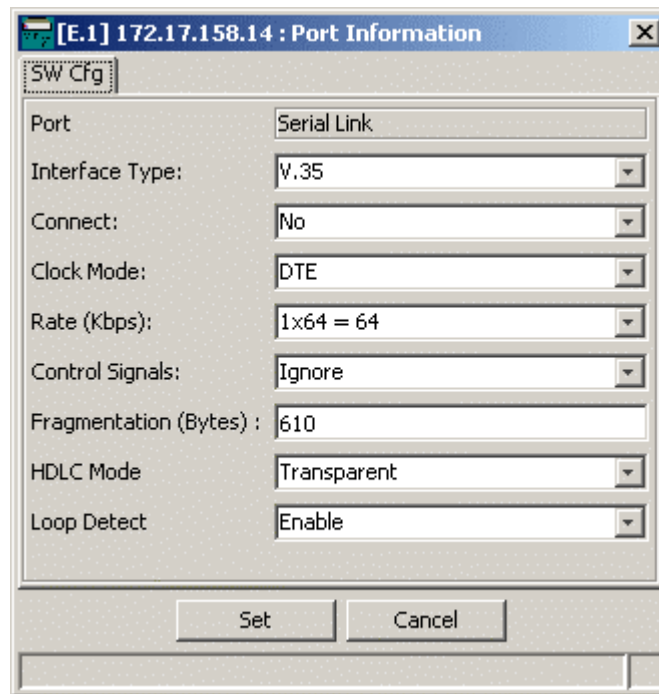


Figure 3-18. Analog Voice Port SW Cfg Tab

Table 3-16. Analog Voice Port SW Cfg Tab Parameters

Parameter	Possible Values / Remarks
Port	FXS-1..FXS-8, FXO-1..FXO-8, E&M-1..E&M-8
E&M Type	Type 1, Type 2, Type 3, SSDC5 Default: Type 1 <b>Note:</b> This parameter is visible for E&M ports only, in groups of 4 ports (1-4 and 5-8).
Wires	2WIRE, 4WIRE Default: 4WIRE <b>Note:</b> This parameter is visible for E&M ports only, in groups of 2 ports (1-2, 3-4, etc.).
Tx Gain (dB)	The selected attenuation value brings your signal level closer to the expected repeater signal level on the cable. FXS: -4..5 FXO: -4..5 E&M: -7..5 Default: 0
Rx Gain (dB)	FXS: -10..5 (Default: -4) FXO: -17..1 (Default: -4) E&M: -17..2 (Default: 0)
[Set]	Click <Set> to save the new values in the dialog box
[Cancel]	Click <Cancel> to cancel the selections made in the dialog box and close the box

***Serial Link Port Software Configuration***

The image shows a configuration window titled "[E.1] 172.17.158.14 : Port Information". It has a tab labeled "SW Cfg". The window contains several configuration fields:

Parameter	Value
Port	Serial Link
Interface Type:	V.35
Connect:	No
Clock Mode:	DTE
Rate (Kbps):	1x64 = 64
Control Signals:	Ignore
Fragmentation (Bytes) :	610
HDLC Mode	Transparent
Loop Detect	Enable

At the bottom of the window are two buttons: "Set" and "Cancel".

*Figure 3-19. Serial Link Port SW Cfg Tab – Agent Mode*

Table 3-17. Serial Link SW Cfg Tab Parameters

Parameter	Possible Values / Remarks
Port	<b>Serial Link</b>
Interface Type	The line type of the interface <b>V.35, X.21, EIA530, EIA530A</b> Default: <b>V.35</b>
Connect	Indicates whether the port should be considered in any of the VMUX algorithms <b>No, Yes</b> Default: <b>No</b>
Clock Mode	<b>DCE, DTE</b> Default: <b>DCE</b>
Rate (Kbps)	<b>1x64=64, 2x64=128, ..., 31x64=1984, 32x64=2048</b> Default: <b>1x64=64</b>
Control Signals (only available when Interface type is set to V.35 and Clock Mode is set to DTE)	<b>Ignore, Implement</b> Default: <b>Ignore</b>
Fragmentation (bytes)	<b>200..1550</b> Default: <b>610</b>
HDLC Mode	<b>Transparent, Cisco Bridged ETH</b> Default: <b>Transparent</b>
Loop Detect	Enables/disables Loop Detection on the Serial Uplink <b>Disable, Enable</b> Default: <b>Disable</b> <i><b>Note:</b> This parameter is disabled when HDLC Mode is set to Cisco Bridged ETH.</i>
[Set]	Click < <b>Set</b> > to save the new values in the dialog box
[Cancel]	Click < <b>Cancel</b> > to cancel the selections made in the dialog box and close the box

## Copying a Port Configuration

In order to save time and trouble, once a port is configured, its software configuration can be easily copied to other ports, using the port **Copy** command.

### ► To copy a port configuration to another port:

1. In Edit Mode, select an FXS Port.
2. From the **Configuration** menu, select **Copy....**
3. Click a destination port to select it.  
Or  
To select multiple destination ports, hold down the Control (Ctrl) key and click the desired destination ports.
4. If a confirmation dialog box appears, click <**OK**> to confirm that you want to copy any way and replace the existing port configurations.

The configuration is copied from the selected source port to the selected destination ports.

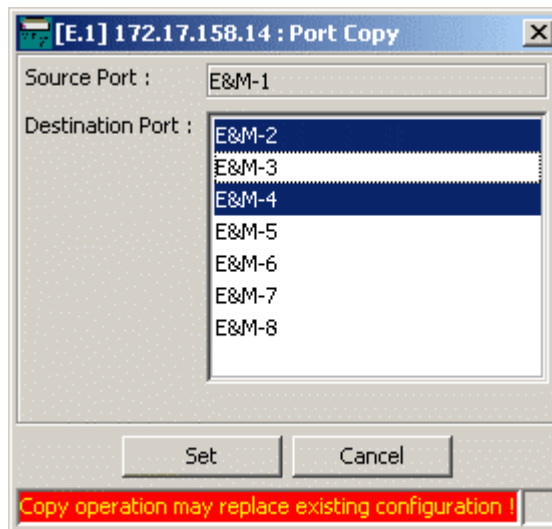


Figure 3-20. Port Copy Dialog Box

Table 3-18. Port Copy Parameters

Parameter	Possible Values / Remarks
Source Port	Selected analog voice port from which to copy configuration
Destination Ports	List of analog voice ports to which to copy the configuration Defaults: <b>FXS/FXO/E&amp;M-1..8</b>
[Set]	Click < <b>Set</b> > to copy the configuration to the selected ports
[Cancel]	Click < <b>Cancel</b> > to close the dialog box without copying the configuration

### 3.3 Additional Tasks

#### Displaying Vmux-110 Host IP Information

The **Mux Info** command enables you to view Host IP connection information about Vmux-110, such as its current IP address and default gateway.

► To view Mux Host IP information:

1. In Agent mode, select the device.
2. From the **Configuration** menu, select **Mux Info**.

or

From the toolbar, click .

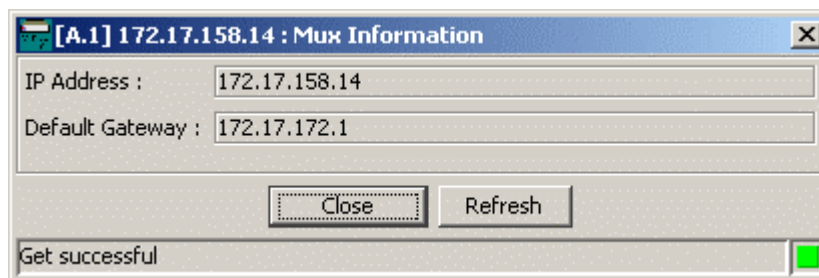


Figure 3-21. Mux Information Dialog Box

Table 3-19. Mux Information Parameters

Parameter	Possible Values / Remarks
IP Address	IP address of Vmux-110 <b>0.0.0.0–255.255.255.255</b>
Default Gateway	Default gateway of Vmux-110 <b>0.0.0.0–255.255.255.255</b>
[Close]	Click < <b>Close</b> > to close the Mux Information dialog box.
[Refresh]	Click < <b>Refresh</b> > to refresh the data in the Mux Information dialog box.

## Displaying Analog Voice Port Status

The **Status...** command enables you to view the status of the FXS, FXO, or E&M ports.

► **To display FXS/FXO/E&M status:**

1. In Agent or Edit mode, select the one of the Analog Voice ports.
2. From the Configuration menu, select **Analog Voice > Status**.

The number of rows in the dialog box corresponds to the number of FXS/FXO/E&M ports.

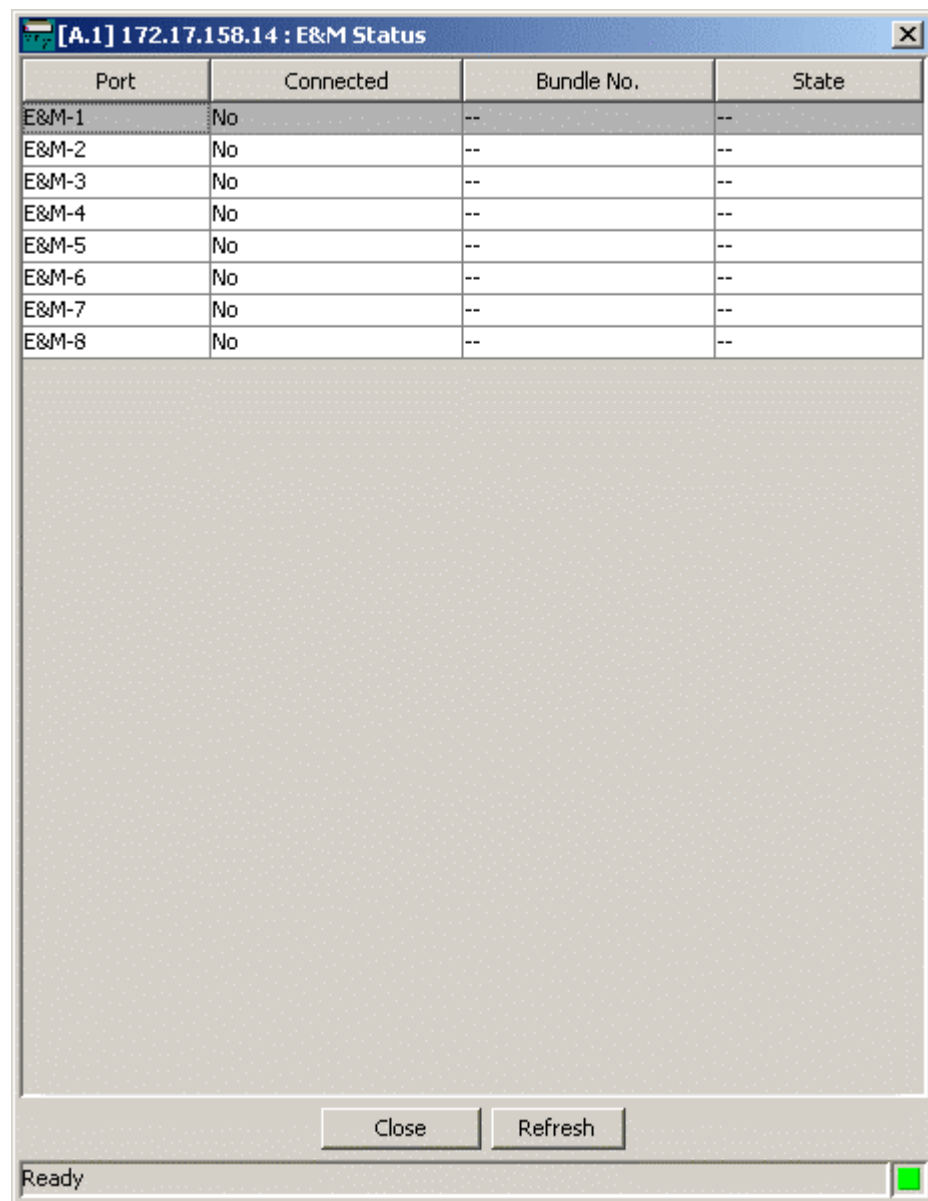


Figure 3-22. FXS Status Dialog Box

Table 3-20. FXS/FXO/E&amp;M Status Parameters

Parameter	Possible Values / Remarks
Port	Port Name
Connected	Yes, No
Bundle No.	--, 1..8
State (Agent mode only)	--, On Hook, Off Hook
[Close]	Click <Close> to close the FXS/FXO/E&M Status dialog box



## Displaying Link E1/T1 Port Time Slot Assignments

The **TS Assignment...** command enables you to display time slot assignments for IP bundles. Time Slot Assignments for Analog Voice ports are accessed through the System Level Configuration menu. Time Slot Assignments for Link E1 and Link T1 ports are accessed through the Port Level Configuration menu. For information on creating and managing bundle connections and time slots using the Service Center, refer to [Chapter 7](#) of the *RADview SC/Vmux System Manual*.

### Note

- Perform a **Read** before opening the TS Assignment dialog box, to ensure that the most up-to-date information is displayed. The **Read** command is described in *Reading (Uploading) the Agent Configuration*, page 3-55.
- For Link E1/T1 ports when Line Type is set to Unframed, Time Slot Assignment is not relevant and the menu is unavailable. Unframed E1/T1 Ports are treated like a pipe of 2 Mbps.
- You should assign which Time Slots to use according to the bandwidth allocated from the carrier. For example: if the available bandwidth is 128 kbps, then you should select two Time Slots of 64 kbps each. The carrier may also require certain Time Slot numbers. Vmux-110 uses all of the Time Slots that you define.

### ► To display configure time slot assignments for a Link E1/T1 Port:

3. In either Agent or Edit mode, select the Link E1 or Link T1 port.
1. From the **Configuration** menu, select **TS Assignment...**

The TS Assignment dialog box appears, displaying IP Bundle Connections. Each Bundle Connection contains the Time Slots numbers of the bundle and their Destination Time Slots numbers.

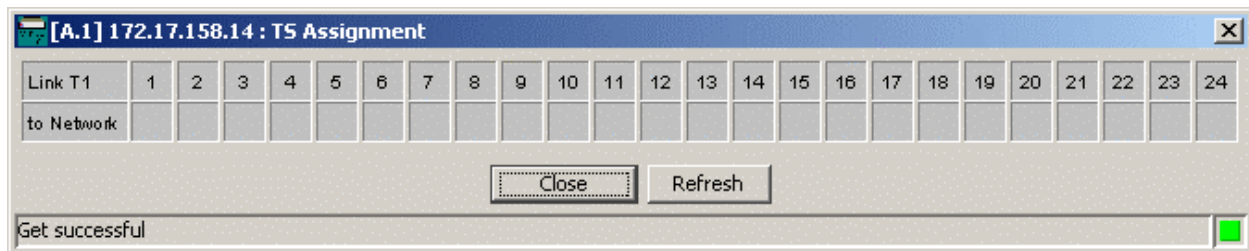


Figure 3-23. TS Assignment Dialog Box – Link E1/T1 Port

Table 3-21. TS Assignment Parameters

Parameter	Possible Values / Remarks
Link E1 or Link T1	Time Slot Number E1: <b>1...31</b> T1: <b>1...24</b>  Cells are color coded to indicate time slot usage or availability: Green: In use Gray: Available (except for time slot 16 of an E1 port) Dark Blue: Non-connectable and Line Type is E1-MF or E1-CRC-MF
To network	Status of the time slot <b>x</b> – The time slot is allocated empty – The time slot is available  Cells are color coded to indicate time slot usage or availability: Yellow: In use Gray: Available Dark Blue: Non-connectable (for example: time slot 16 of an E1 or E1-CRC port)
[Close]	Click < <b>Close</b> > to close the dialog box

The left-most column also changes color to indicate aggregate usage or availability in the following manner:

- Green: All of the time slots are used
- Gray: All of the time slots are available
- Yellow: Some of the time slots are used

## Displaying Voice Port Time Slot Assignments

The **TS Assignment...** command enables you to display time slot assignments for IP bundles. For information on creating and managing bundle connections and time slots using the Service Center, refer to [Chapter 7](#) of the *RADview SC/Vmux System Manual*.

### Note

- *This dialog box is useful in Edit mode, even when there is no connection with the Agent.*
- *When there is a connection with the Agent, perform a **Read** before opening the TS Assignment dialog box, to ensure that the most up-to-date information is displayed. The **Read** command is described in [Reading \(Uploading\) the Agent Configuration](#), on page 3-55.*
- *You should assign which Time Slots to use according to the bandwidth allocated from the carrier. For example: if the available bandwidth is 128 kbps, then you should select two Time Slots of 64 kbps each. The carrier may also require you to use specific Time Slot numbers. Vmux-110 uses all of the Time Slots that you define.*

► To display time slot assignments:

1. In either Agent or Edit mode, select the device (for FXS/FXO/E&M) or the port (for Channel E1 or Channel T1 ports).
2. From the Configuration menu, select Analog Voice > TS Assignment.

The TS Assignment dialog box appears, displaying IP Bundle Connections. Each Bundle Connection contains the Time Slots numbers of the bundle and their Destination Time Slots numbers.

**Note**

To display the Sub Channel Types and Sub Channel Masks for a Time Slot, move the mouse pointer over the desired Time Slot. If the Time Slot contains Sub Channels, then a Tool Tip appears, displaying the details of the Sub Channels.

### TS Assignment Dialog Box – Analog Voice Port

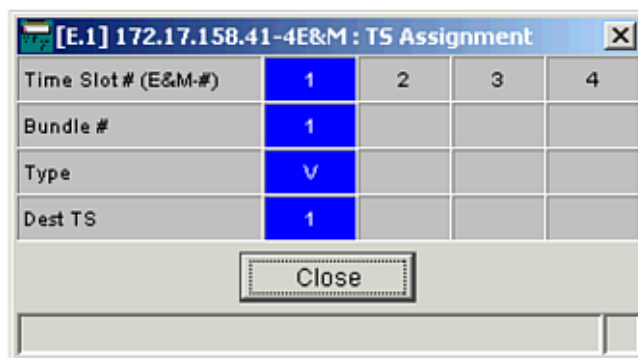


Figure 3-24. TS Assignment Dialog Box – Analog Voice Port

Table 3-23. TS Assignment Parameters – Analog Voice Port

Parameter	Possible Values / Remarks
Time Slot # (FXS/FXO/E&M-#)	The analog voice port number
Bundle #	The Bundle No. to which this timeslot belongs Cells are color coded to indicate usage or availability: Dark Blue: In Use Gray: Available
Type	Time Slot Type V (voice) <b>Note:</b> Analog Voice ports are always type V.
Dest TS	Destination TS
[Close]	Click <Close> to close the dialog box

## TS Assignment Dialog Box – Voice Channel E1/T1 Port

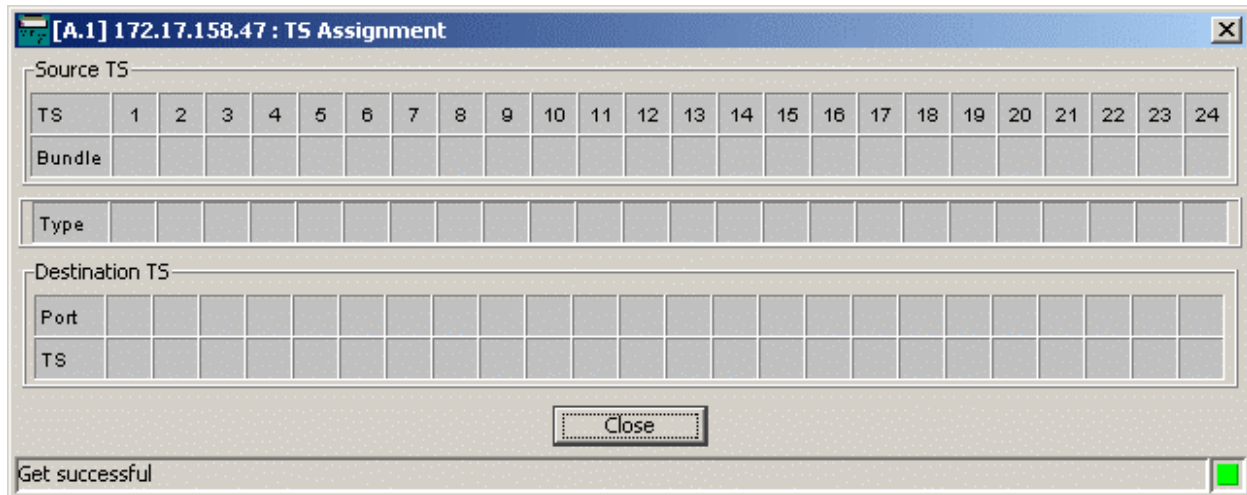


Figure 3-25. TS Assignment Dialog Box – Voice Channel E1/T1 Port

Table 3-24. TS Assignment Parameters – Voice Channel E1/T1 Port

Parameter	Possible Values / Remarks
<b>Source TS</b>	
TS	The voice port number
Bundle	The Bundle No. to which this timeslot belongs Cells are color coded to indicate usage or availability: Dark Blue: In Use Gray: Available
Type	Time Slot Type <b>H1, H2, H3, H4</b> (HDLC-1, 2, 3, or 4) <b>S1, S2</b> (SS7 Signaling number 1 or 2) <b>T</b> (Transparent) <b>C1, C2, C3, C4, C5, C6, C7, C8</b> (HDLC/Transparent Sub Channel Number) <b>V</b> (voice) <b>H</b> (HDLC Phase 2 compatible) <b>No Connection</b> <b>Note:</b> <ul style="list-style-type: none"> <li>Analog Voice ports are always type <b>V</b>.</li> <li>When the device on the other side of the link is running software version 2.x, the only valid Time Slot Types are: <b>No Connection</b>, <b>V</b>, and <b>H</b>.</li> <li>The <b>H</b> value is only possible when the device on the other side is a Vmux-110 or a Vmux-2100 and it is running software version 2.x.</li> </ul>
<b>Destination TS</b>	
Port	Destination Port <b>Note:</b> if the destination port is an analog port, then this parameter/row is not displayed.
TS	Destination TS
[Close]	Click < <b>Close</b> > to close the dialog box

## Displaying Bundle Connection Parameters

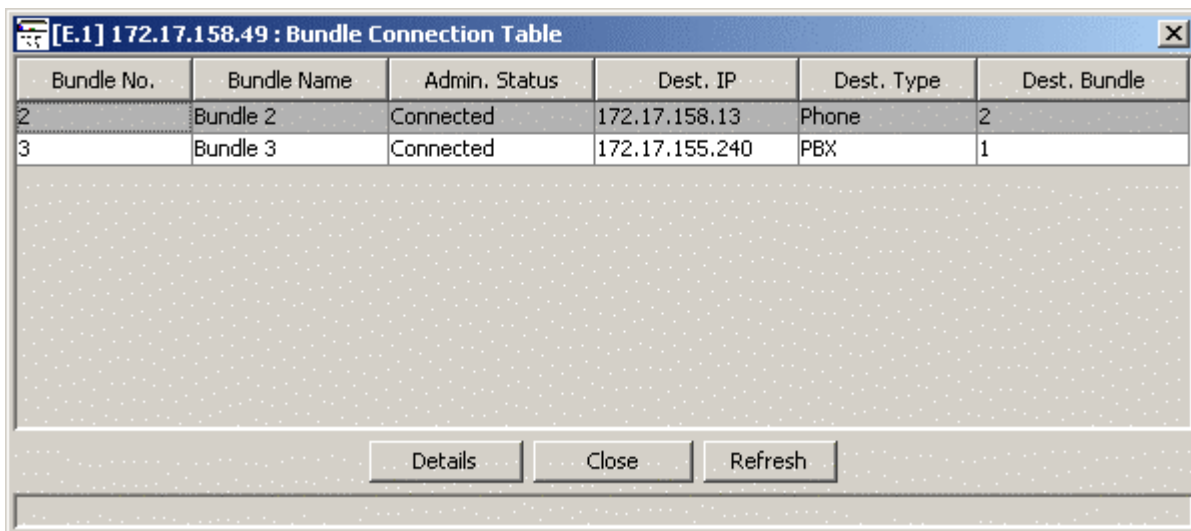
The **Bundle Connection Table** command enables you to view IP Bundle connection parameter values. Voice timeslots are grouped together into bundles. Vmux-110 supports 12 bundles, with a maximum of 30 timeslots per bundle. For information on creating and managing bundle connections using the Service Center, refer to [Chapter 7](#) of the *RADview SC/Vmux System Manual*.

► To view the Bundle Connection Table parameters:

1. In either Agent or Edit mode, select the device.
2. From the **Configuration** menu, select **Bundles Connection Table...**

**Note**

The **Bundle Connection Table** provides general information about each bundle connection. More details are provided in the **Bundle Connection Details** dialog. Click on the **Details** button to view all data for a selected bundle (see below).



Bundle No.	Bundle Name	Admin. Status	Dest. IP	Dest. Type	Dest. Bundle
2	Bundle 2	Connected	172.17.158.13	Phone	2
3	Bundle 3	Connected	172.17.155.240	PBX	1

Figure 3-26. Bundle Connection Table

Table 3-25. Bundle Connection Parameters

Parameter	Possible Values / Remarks
Bundle No.	<b>1..12</b>
Bundle Name	Unique bundle name (string, maximum 10 characters)
Admin Status	Indicates state of the link <b>Connected, Disconnected</b> (frames are not sent from this channel)
Dest. IP	IP address of the destination mux <b>0.0.0.0–255.255.255.255</b>
Dest. Type	--, <b>PBX, Phone</b> <i><b>Note:</b> This parameter is only visible when the Vmux-110 contains FXS ports.</i>
Dest. Bundle	Bundle number in the destination mux <b>1..30</b> Default: <b>1</b>
[Details]	Click < <b>Details</b> > to view detailed configuration information for the selected Bundle Connection table entry. This button is enabled only when a table entry is selected.
[Close]	Click < <b>Close</b> > to close the dialog box.
[Refresh]	Click < <b>Refresh</b> > to refresh the data displayed in the dialog box.

## Bundle Connection Details

### ► To view Bundle Connection details:

1. In either Agent or Edit mode, open the **Bundles Connection Table...**
2. Select a table entry.
3. Click <**Details**>.

The **Bundle Connection Details** dialog box appears, with the following tabs:

**SW Cfg 1** (see [Figure 3-27](#) and [Table 3-26](#))

**SW Cfg 2** (see [Figure 3-28](#) and [Table 3-27](#))

**SW Cfg 3** (see [Figure 3-29](#) and [Table 3-28](#))

**SW Cfg 4** (see [Figure 3-30](#) and [Table 3-29](#))

**SW Cfg 5** (see [Figure 3-31](#) and [Table 3-30](#)).

4. Click the desired tab **SW Cfg 1**, **SW Cfg 2**, **SW Cfg 3**, **SW Cfg 4**, or **SW Cfg 5**.
5. If you wish to display the Advanced Voice Parameters:
  1. Click the **SW Cfg 5** tab.
  2. Click <**Advanced Voice Parameters...**>.

The Advanced Voice Parameters dialog box appears (see [Figure 3-32](#) and [Table 3-31](#)).

- When you are finished viewing bundle parameters, click <Close>.

### ***SW Cfg 1 Tab***

**[A.1] 172.17.158.48 : Bundle Connection Details**

SW Cfg 1 | SW Cfg 2 | SW Cfg 3 | **SW Cfg 4** | SW Cfg 5

Bundle No. : 1

Bundle Name : Bundle 1

Admin. Status : Connected

Dest. Bundle : 1

Transport Protocol : TDMoIP+ (Compressed Header)

MTU (Max Transmission Unit) : 500

Packet interval (msec.) : 30

No. of Transmissions for each Packet : 1

Signaling Type of Service (TOS)

Precedence : Routine

Type of Service : Normal

Media Type of Service (TOS)

Precedence : Routine

Type of Service : Normal

Voice Coding : G7231 6.4 Kbps

MFC Spoofing : Enable

Tone Ack Interval (msec) : 60

Connectivity Packet

Connectivity Mode : Ping

Packet Frequency (sec) : 60

Timeout Cycles (sec) : 3

Close Refresh

Get successful

*Figure 3-27. Bundle Connection Details SW Cfg 1 Dialog Box*

Table 3-26. Bundle Connection Details SW Cfg 1 Connection Parameters

Parameter	Possible Values/Remarks
Bundle No.	Index number of the IP Bundle <b>1..12</b>
Bundle Name	Unique bundle name. <i>Maximum of 10 characters.</i>
Admin Status	Connection status of the IP Bundle <b>Connected, Disconnected</b> (frames are not sent from this channel)
Dest. Bundle	Bundle number in the destination IPmux device <b>1..30</b>
Transport Protocol	<b>TDM over IP, AAL2 over MPLS, TDMoIP+, AAL2oMPLS+</b> <i>Note:</i> In the CLI (ASCII terminal), this parameter is called Function. <b>TDMoIP+</b> and <b>AAL2oMPLS+</b> use header compression. The values <b>TDMoIP+</b> and <b>AAL2oMPLS+</b> only exist in version 3.11 and higher.
MTU (Max Transmission Unit)	The largest packet size that can be transmitted over this IP Bundle <b>100..1461</b> Default: <b>500</b>
Packet Interval (msec)	Defines maximum amount of time (msec.) between multiplexed frames that are sent <b>10..90</b> (in steps of 10) Default: <b>30</b> <i>Note: In the CLI (ASCII terminal), this parameter is called Packetizing Interval.</i>
No. of Transmissions for Each Packet	The number of times to retransmit a voice frame <b>1..4</b> Default: <b>1</b> <i>Note: This parameter exists in version 3.11 and higher.</i>
Signaling Type of Service (TOS)	<i>Note: In versions prior to 3.11 there is only one TOS group; the group is called Type of Service.</i>
Precedence	Priority of traffic from this IP Bundle over the network <b>Routine, Priority, Immediate, Flash, Flash Override, CRITIC/ECP, Inter network ctrl, Network Control</b> Default: <b>Routine</b>
Type of Service	Type of service for traffic from this IP Bundle <b>Normal, High Reliability, High Throughput, High Throughput-Hi Reliability, Low Delay, Low Delay-High Reliability, Low Delay-High Throughput, Low Delay-High Throughput-High Reliability</b> Default: <b>Normal</b>
Media Type of Service (TOS)	
Precedence	Priority of traffic from this IP Bundle over the network <b>Routine, Priority, Immediate, Flash, Flash Override, CRITIC/ECP, Inter network ctrl, Network Control</b> Default: <b>Routine</b>



Table 3-26. Bundle Connection Details SW Cfg 1 Connection Parameters (Cont.)

Parameter	Possible Values/Remarks
Type of Service	Type of service for traffic from this IP Bundle <b>Normal, High Reliability, High Throughput, High Throughput-Hi Reliability, Low Delay, Low Delay-High Reliability, Low Delay-High Throughput, Low Delay-High Throughput-High Reliability</b> Default: <b>Normal</b>
Voice Coding	Encoding type and transmission rate for voice traffic through this IP Bundle <b>G7231 6.4 Kbps, G7231 5.3 Kbps, G729A 8 Kbps, G711 A Law, G711 u_Law</b> Default: <b>G7231 6.4 Kbps</b> <b>Note:</b> In the CLI (ASCII terminal), this parameter is called Coder/Rate.
MFC Spoofing	<b>Enable, Disable</b> <b>Note:</b> This parameter is only visible for E1/T1 bundles with MFCR2 enabled.
Tone Ack Interval (msec)	<b>60...400</b> (in steps of 20) <b>Note:</b> This parameter is only visible for E1/T1 bundles with MFCR2 and MFC Spoofing enabled.
<b>Connectivity Packet</b>	
Connectivity Mode	<b>Ping, OAM</b> Default: <b>Ping</b>
Packet Frequency (sec)	<b>1..60</b> Default: <b>60</b>
Timeout Cycles	<b>2..5</b> Default: <b>3</b>
[Close]	Click < <b>Close</b> > to close the dialog box.
[Refresh]	Click < <b>Refresh</b> > to refresh the data displayed in the dialog box.

***SW Cfg 2 Tab***

**[A.1] 172.17.158.48 : Bundle Connection Details**

SW Cfg 1 | **SW Cfg 2** | SW Cfg 3 | SW Cfg 4 | SW Cfg 5

Bundle No. :	1
Auto Fax Mode :	<input checked="" type="checkbox"/>
FAX Rate (Kbps) :	14.4
Modem :	Voice Band Data
Max VBD Modem Calls :	31
Max Relay Modem Calls :	31
Custom Tone Detection :	Enable
Custom Tone Frequency (Hz)	2000
Echo Cancellor :	Enable
Coding Law :	A Law
Transparent Jitter Buffer (msec) :	20
Caller ID Tx Delay (msec) :	400
Noise Level for VAD :	Low
Comfort Noise Generation :	On

Close Refresh

Get successful

*Figure 3-28. Bundle Connection Details SW Cfg 2 Dialog Box*

Table 3-27. Bundle Connection Details SW Cfg 2 Connection Parameters

Parameter	Possible Values/Remarks
Bundle No.	<b>1..12</b>
Auto FAX Mode	<b>Checked, Unchecked</b>
FAX Rate (Kbps)	<b>Not Connected, 4.8, 9.6, 14.4, VBD FAX</b> Default: <b>14.4</b> <b>Note:</b> When Auto FAX Mode is <b>Unchecked</b> , this parameter is set to <b>Not Connected</b> .
Assigned to FXS Port/s	<b>1..4</b> or <b>1..8</b> <b>Note:</b> Multiple values may appear, separated by commas. This parameter is enabled for FXS bundles only.
Destination Type	<b>PBX, Phone</b> <b>Note:</b> This parameter enabled for FXS bundles only.
Modem	<b>Disable, Voice Band Data, Relay</b>
Max VBD Modem Calls	Maximum number of voice-band data (VBD) modem calls for this bundle Channel E1: <b>1..31</b> Channel T1: <b>1..24</b> Analog Voice: <b>1..4</b> or <b>1..8</b> <b>Note:</b> This parameter exists in version 4.0 and higher.
Max Relay Modem Calls	Maximum number of relay modem calls for this bundle Channel E1: <b>1..62</b> Channel T1: <b>1..48</b> Analog Voice: <b>1..4</b> or <b>1..8</b> <b>Note:</b> This parameter exists in version 4.0 and higher.
Custom Tone Detection	<b>Disable, Enable</b> <b>Note:</b> This parameter is only displayed for E1/T1 bundles.
Custom Tone Frequency (Hz)	<b>1780, 2000, 1780 and 2000</b> <b>Note:</b> This parameter exists in version 3.11 and higher.
Echo Cancellor	<b>Disable, Enable</b>
Coding Law	<b>A Law, u Law</b> <b>Note:</b> This parameter is disabled for FXS/FXO/E&M bundles.
Transparent Jitter Buffer (*10 msec)	<b>2..10</b> <b>Note:</b> This parameter is disabled for FXS/FXO/E&M bundles.
Caller ID Tx Delay (msec)	<b>0..3000</b> (in steps of 100) Default: <b>400</b> <b>Note:</b> <ul style="list-style-type: none"> <li>In the CLI (ASCII terminal), this parameter is called <b>CLID Tx Delay</b>.</li> <li>This parameter is enabled only when Voice Coding is set to <b>G729A 8 Kbps</b>.</li> <li>This parameter exists in version 3.11 and higher.</li> </ul>

Table 3-27. Bundle Connection Details SW Cfg 2 Connection Parameters (Cont.)

Parameter	Possible Values/Remarks
Noise Level for VAD	<p>Defines the level of noise on the line, that the Voice Activation Detector (VAD) will have to handle</p> <p><b>Low, High, Off</b></p> <p>Default: <b>Low</b></p> <p><b>Note:</b></p> <p><b>High</b> optimizes the VAD for environments where background voice as well as background noise must be carried across the link (such as in environments where conference bridges and speaker phones are used).</p> <p><b>Low</b> reduces the background noise passed across the link (and therefore reduces the bandwidth consumed).</p> <p><b>Off</b> is only available when Voice Coding is not set to:</p> <p><b>G711 A Law</b> or <b>G711 u Law</b>. <i>(The <b>OFF</b> value exists in version 4.0 and higher.)</i></p>
Comfort Noise Generation	<p><b>Off, On</b></p> <p>Default: <b>On</b></p> <p><b>Note:</b> <i>This parameter exists in version 4.0 and higher.</i></p>
[Close]	Click < <b>Close</b> > to close the dialog box.
[Refresh]	Click < <b>Refresh</b> > to refresh the data displayed in the dialog box.

***SW Cfg 3 Tab***

The screenshot shows a window titled "[E.1] 172.18.170.123 : Bundle Connection Details". Inside, there are five tabs: "SW Cfg 1", "SW Cfg 2", "SW Cfg 3" (which is selected and highlighted with a dotted border), "SW Cfg 4", and "SW Cfg 5". The "SW Cfg 3" tab contains the following fields:

- Bundle No. : 1
- Dest. IP : 172.18.170.124
- Vlan Tagging : Untag
- VLAN ID : 26
- Priority Tag : 0
- MFCR2 section:
  - MFCR2 : Disable
  - Minimum Pulse Width (msec) : 50
  - Minimum Power Level (dBm) : -20

At the bottom of the dialog, there are two buttons: "Close" and "Refresh".

*Figure 3-29. Bundle Connection Details SW Cfg 3 Dialog Box*

Table 3-28. Bundle Connection Details SW Cfg 3 Connection Parameters

Parameter	Possible Values/Remarks
Bundle No.	1..12
Dest IP	0.0.0.0..255.255.255.255
VLAN Tagging	Tag, Untag
VLAN ID	26..4094 <i>Note: This parameter is disabled when VLAN Tagging is set to Untag.</i>
Priority Tag	0..7 <i>Note: This parameter is disabled when VLAN Tagging is set to Untag.</i>
<b>MFCR2</b>	
MFCR2	Enable, Disable
Minimum Pulse Width (msec)	Minimum pulse width of the MF tone to be detected and relayed 45..300 <i>Note: This parameter is enabled only when MFCR2 is enabled. This parameter is disabled for FXS/FXO/E&amp;M bundles.</i>
Minimum Power Level (dBm)	Minimum power level of the MF tone to be detected and relayed -1..-35 <i>Note: This parameter is enabled only when MFCR2 is enabled. This parameter is disabled for FXS/FXO/E&amp;M bundles.</i>
[Close]	Click <Close> to close the dialog box.
[Refresh]	Click <Refresh> to refresh the data displayed in the dialog box.

**SW Cfg 4 Tab**

**[E.1] 172.17.158.46 : Bundle Connection Details**

SW Cfg 1 | SW Cfg 2 | SW Cfg 3 | **SW Cfg 4** | SW Cfg 5

Bundle No. : 1

**Signaling Parameters**

	On Hook	Off Hook	Reverse Polarity	Ring 1	Ring 2	Pulse Metering
A:	<input checked="" type="radio"/> 0 <input type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1
B:	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input checked="" type="radio"/> 0 <input type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input checked="" type="radio"/> 0 <input type="radio"/> 1
C:	<input checked="" type="radio"/> 0 <input type="radio"/> 1	<input checked="" type="radio"/> 0 <input type="radio"/> 1	<input checked="" type="radio"/> 0 <input type="radio"/> 1	<input checked="" type="radio"/> 0 <input type="radio"/> 1	<input checked="" type="radio"/> 0 <input type="radio"/> 1	<input checked="" type="radio"/> 0 <input type="radio"/> 1
D:	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1	<input type="radio"/> 0 <input checked="" type="radio"/> 1

Ringback :

Reverse Polarity :

Immediate On-Hook Detect While Ringing :

**Pulse Metering Parameters**

Enable :

Frequency (KHz) :

Duration (msec) :

*Figure 3-30. Bundle Connection Details SW Cfg 4 Dialog Box*

**Note**

*The SW Cfg 4 tab is only visible if the Vmux-110 has analog ports, for example: FXS, FXO, or E&M ports.*

Table 3-29. Bundle Connection Details SW Cfg 4 Connection Parameters

Parameter	Possible Values/Remarks
Bundle No.	<b>1..12</b>
<b>Signaling Parameters</b>	
<b>Signaling Bits</b>	
On Hook	1st LSB Nibble, representing the ON HOOK signal (the same for transmit and receive) <b>0000..1111</b> Default: <b>1010</b> (DCBA)
Off Hook	2nd LSB Nibble, representing the OFF HOOK signal (the same for transmit and receive) <b>0000..1111</b> Default: <b>1011</b> (DCBA)
Ring I	4th LSB Nibble, representing the RING PATTERN 1 signal <b>0000..1111</b> Default: <b>1011</b> (DCBA) <i><b>Note:</b> This parameter is enabled for FXS ports only.</i>
Ring II	5th LSB Nibble, representing the RING PATTERN 2 signal <b>0000..1111</b> Default: <b>1011</b> (DCBA) <i><b>Note:</b> This parameter is enabled for FXS ports only.</i>
Reverse Polarity	3rd LSB Nibble, representing the REVERSE POLARITY signal <b>0000..1111</b> Default: <b>1001</b> (DCBA) <i><b>Note:</b> This parameter is enabled for FXS and FXO ports, when Pulse Metering is enabled.</i>
Pulse Metering	6th LSB Nibble, representing the PULSE METERING signal <b>0000..1111</b> Default: <b>1001</b> (DCBA) <i><b>Note:</b> This parameter is disabled when Reverse Polarity is enabled.</i>
Ringback	<b>Disable, Enable</b> Default: <b>Enable</b> <i><b>Note:</b> This parameter is enabled for FXO ports only.</i>
Reverse Polarity	<b>Disable, Enable</b> Default: <b>Disable</b> <i><b>Note:</b> This parameter is enabled for FXS and FXO ports, when Pulse Metering is disabled.</i>
Immediate On-Hook Detect While Ringing	Enables or disables immediate reaction to On-Hook bits from network, while ringing <b>Disable, Enable</b> Default: <b>Disable</b> <i><b>Note:</b> This parameter is enabled for FXS ports only.</i>
<b>Pulse Metering</b>	<i><b>Note:</b> The Pulse Metering parameters are disabled (grayed out) for Vmux-110.</i>



*Table 3-29. Bundle Connection Details SW Cfg 4 Connection Parameters (Cont.)*

Parameter	Possible Values/Remarks
Enable	Enables or disables pulse metering synthesis <b>No, Yes</b> Default: <b>No</b>
Frequency (kHz)	Frequency of synthesized pulse metering for this bundle <b>12, 16</b> Default: <b>16</b>
Duration (msec)	Duration of synthesized pulse metering <b>100..250</b> Default: <b>150</b>
[Close]	Click < <b>Close</b> > to close the dialog box.
[Refresh]	Click < <b>Refresh</b> > to refresh the data displayed in the dialog box.

**SW Cfg 5 Tab**

**[A.1] 172.17.158.48 : Bundle Connection Details**

SW Cfg 1 | SW Cfg 2 | SW Cfg 3 | SW Cfg 4 | **SW Cfg 5**

VAD Method : Proprietary

Tx Gain (dB) : 0

Rx Gain (dB) : 0

Caller ID Type : Bellcore Type 1

VBD Rate (Kbps) : 64 in 5 msec Intervals (G.711)

CAS Redundancy : Disable

Advanced Voice Parameters...

Close Refresh

Get successful

*Figure 3-31. Bundle Connection Details SW Cfg 5 Dialog Box*

Table 3-30. Bundle Connection Details SW Cfg 5 Connection Parameters

Parameter	Possible Values/Remarks
VAD Method	<p>The voice activation detection (VAD) method  <b>Proprietary, Internal (ITU-T)</b>  Default: <b>Proprietary</b></p> <p><b>Note:</b>  <i>Proprietary</i> uses a non standard VAD method, based only on power measurement. This method is very sensitive to background noise.  <i>Internal (ITUT)</i> uses the standard ITU-T method for VAD. This method is very robust.  This parameter exists in version 3.11 and higher.</p>
Tx Gain (dB)	<p>The transmit gain, in dBm.  <b>-6..6</b>  Default: <b>0</b></p> <p><b>Note:</b>  This parameter is disabled for FXS/FXO/E&amp;M bundles.  In the CLI, this parameter is called <b>Volume (To Line)</b>.</p>
Rx Gain (dB)	<p>The receive gain, in dBm.  <b>-6..6</b>  Default: <b>0</b></p> <p><b>Note:</b>  In the CLI, this parameter is called <b>Volume (From Line)</b>.  This parameter exists in version 3.11 and higher.</p>
Caller ID Type	<p>The Caller ID type used by the DSP for this bundle  <b>Bellcore Type 1, V.23</b>  Default: <b>Bellcore Type 1</b></p> <p><b>Note:</b>  Bellcore type Caller ID is the American method.  V.23 type Caller ID is the European method.  This parameter is only available when Voice Coding is set to <b>G729A 8</b>.  This parameter exists in version 4.0 and higher.</p>
VBD Rate (Kbps)	<p>The voice-band data (VBD) rate for this bundle  <b>64 in 5 msec Intervals (G.711), 64 in 10 msec Intervals (G.711), 32 (G.726), 24 (G.726)</b>  Default: <b>64 in 5 msec Intervals (G.711)</b></p> <p><b>Note:</b> This parameter exists in version 4.0 and higher.</p>

Table 3-30. Bundle Connection Details SW Cfg 5 Connection Parameters (Cont.)

Parameter	Possible Values/Remarks
CAS Redundancy	<p>Enables or disables CAS signaling redundancy  <b>Disable, Enable</b>  Default: <b>Disable</b></p> <p><b>Note:</b>  <b>Enable</b> means that each packet containing CAS signaling will be replicated, for redundancy, into 3 packets. This setting is useful when there are problems with the network. This parameter only affects connections that utilize CAS signaling, such as: <b>E1-MF (G.732S)</b> or <b>E1-CRC-MF (G.732SCRC )</b>.  <b>Disable</b> means that no redundancy will exist. Only 1 packet containing CAS will be transmitted.</p> <p>This parameter exists in version 3.11 and higher.</p>
Advanced Voice Parameters...	Click < <b>Advanced Voice Parameters...</b> > to open the Advanced Voice Parameters dialog box and display additional voice parameters.
[Close]	Click < <b>Close</b> > to close the dialog box.
[Refresh]	Click < <b>Refresh</b> > to refresh the data displayed in the dialog box.

### Advanced Voice Parameters

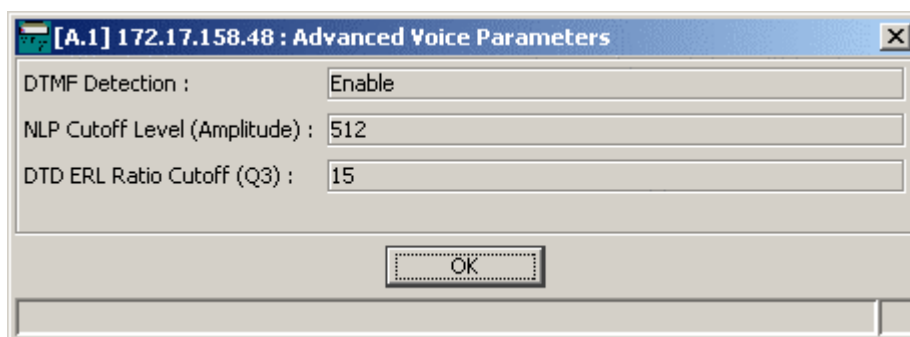


Figure 3-32. Advanced Voice Parameters Dialog Box

Table 3-31. Advanced Voice Parameters

Parameter	Possible Values/Remarks
DTMF Detection	Enables or disables DTMF (Dual Tone Multi Frequency) detectors for this bundle <b>Enable, Disable</b> Default: <b>Disable</b> <i><b>Note:</b> This parameter exists in version 3.11 and higher.</i>
NLP Cutoff Level (Amplitude)	The non-linear processor (NLP) cutoff level for this bundle <b>0..1023</b> Default: <b>512</b> <i><b>Note:</b></i> This parameter is used by the echo canceller. It defines the maximum absolute linear PCM amplitude of the near-end signal that will cause the NLP module to be active and to mute low level residual echo & noisy surroundings. This parameter exists in version 4.0 and higher.
DTD ERL Ratio Cutoff (Q3)	The Double Talk Detection (DTD) Echo Return Loss (ERL) cutoff level <b>0..96</b> Default: <b>15</b> <i><b>Note:</b></i> This parameter is used by the echo canceller when echo exists and there is voice with low volume on the line, in order to determine whether the near-end is talking or not. Echo Return Loss (ERL) is the power difference in dB between the far-end signal and the echo returned. This parameter exists in version 4.0 and higher.
[OK]	Click <OK> to close the dialog box.

## Reading (Uploading) the Agent Configuration

The **Read** command uploads the current Agent configuration to the Edit configuration.

### **Note**

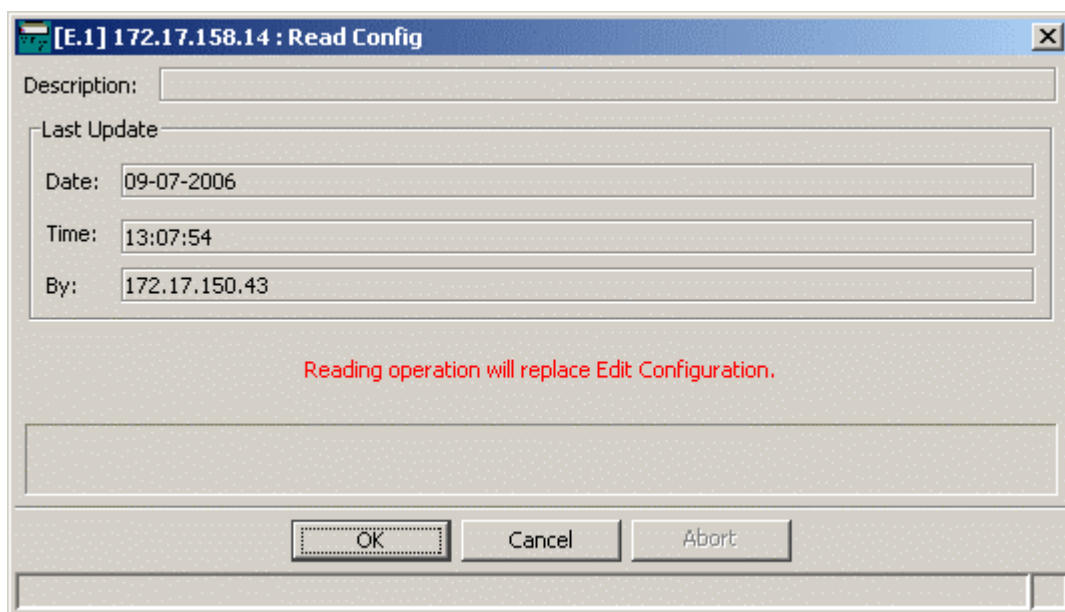
*The Read command is only available when there is communication with the Agent.*

- **To upload the configuration from the Agent:**
  1. In Edit mode only, select the device.
  2. From the **Configuration** menu, select **Read**.
  3. Click <OK> to upload the current Agent configuration automatically.

### **Note**

*The configuration upload commences immediately. No additional user confirmation is requested.*

The **Read Configuration** dialog box remains open while the data is uploading. A Progress Bar illustrates the upload progress.



*Figure 3-33. Read Configuration Dialog Box*

*Table 3-32. Read Configuration Parameters*

Parameter	Possible Values / Remarks
Description	Brief description of each agent configuration in the RADview database
<b>Last Update</b>	
Date	Date of the last update of each configuration
Time	Time of the last update of each configuration
By	IP address of the manager that performed the last update of each configuration <b>0.0.0.0–255.255.255.255</b>
[OK]	Click <OK> to automatically upload the current Agent configuration
[Cancel]	Click <Cancel> to close the Read Configuration dialog box without uploading the current Agent configuration
[Abort]	Click <Abort> to stop reading the current Agent configuration

## Updating (Downloading) the Configuration to the Agent

The **Update** command downloads a specific Edit Configuration to the VMUX Agent.

► **To update the Agent:**

1. In Edit mode only, select the device.
2. From the **Configuration** menu, select **Update**.
3. If desired, enter a description of the configuration.
4. Click <OK> to download the selected configuration to the VMUX.

The **Update Configuration** dialog box remains open while the data is downloading. A Progress Bar illustrates the download progress.

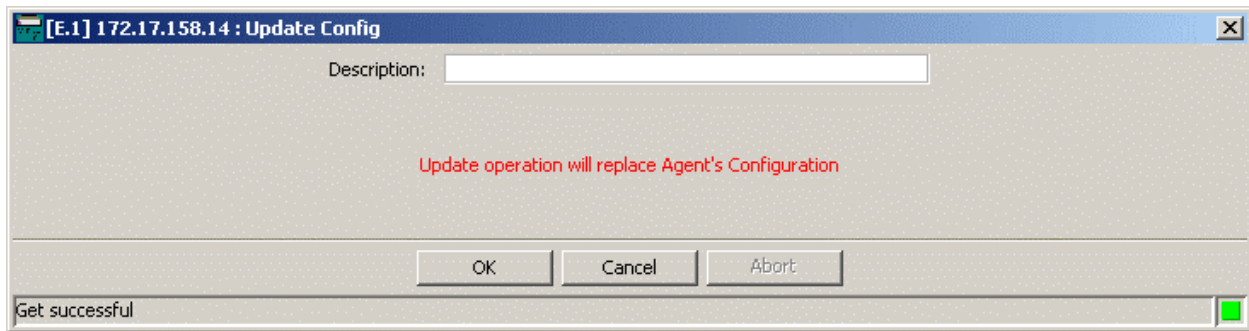


Figure 3-34. Update Configuration Dialog Box

Table 3-33. Update Configuration Parameters

Parameter	Possible Values / Remarks
Description	Brief description of the selected Edit Configuration, a string of up to 19 characters
[OK]	Click <OK> to automatically download the Edit configuration
[Cancel]	Click <Cancel> to close the Update Configuration dialog box without downloading the Edit configuration
[Abort]	Click <Abort> to stop updating the current Agent configuration

**Note**

*If the configuration download is interrupted for any reason, a message box appears with the message **Update was interrupted**. Click <Cancel> to cancel the update operation. Click <Retry> to attempt to resend the rest of the unsent data, starting with the last sent message.*

## Resetting Vmux-110 to the Default Configuration

The **Reset Configuration** command enables you to reset the Agent's configuration back to the factory defaults. Use this command when you wish to reconfigure all of the parameters from a clean starting point. This is useful when Vmux-110's current configuration is completely unsatisfactory, such as when moving a device to another site, or if the configuration database has become corrupted or the device's software has been upgraded.

► **To reset the configuration:**

1. In Agent mode only, select the device.
2. From the Configuration menu, select System Commands > Reset Configuration.
3. Click <OK>.

The hardware configuration is reset.

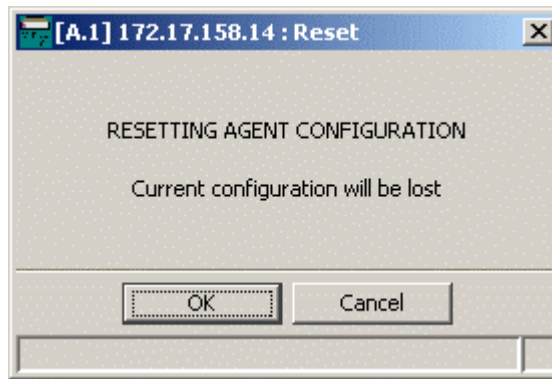


Figure 3-35. Reset Configuration Dialog Box

## Polling the Agent

The **Poll Agent** command causes the device to immediately poll the Agent. This command is useful if you configure the device NOT to perform periodic polling of the Agent. Using this command, you can perform a 'one time' polling to update the device's status.

► **To poll the Agent:**

1. In either Agent or Edit mode, select the device.
2. From the Configuration menu, select **System Commands > Poll Agent**.

The device immediately polls the agent.

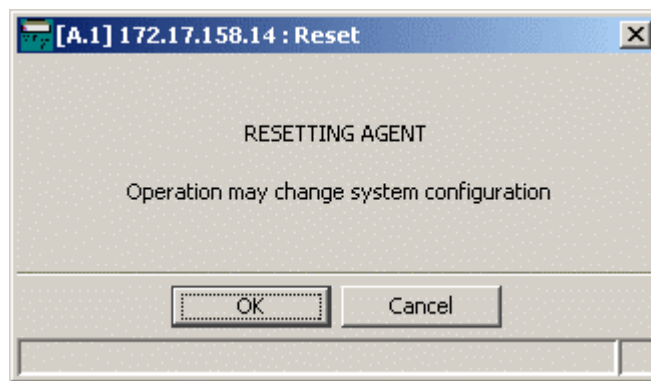
## Resetting Vmux-110

The **Reset HW** command enables you to reset the Agent's hardware to re-initialize the main board CPU of the Vmux-110 unit. Use this command to reset Vmux-110 in the unlikely event that the device is unresponsive (has locked up) or is behaving erratically.

► **To reset the hardware:**

1. In Agent mode only, select the device.
2. From the Configuration menu, select **System Commands > Reset HW**.
3. Click <OK>.

The Agent's hardware resets; the Vmux-110 unit is re-initialized and its active software is decompressed and loaded into the RAM.



*Figure 3-36. Reset HW Dialog Box*



# Chapter 4

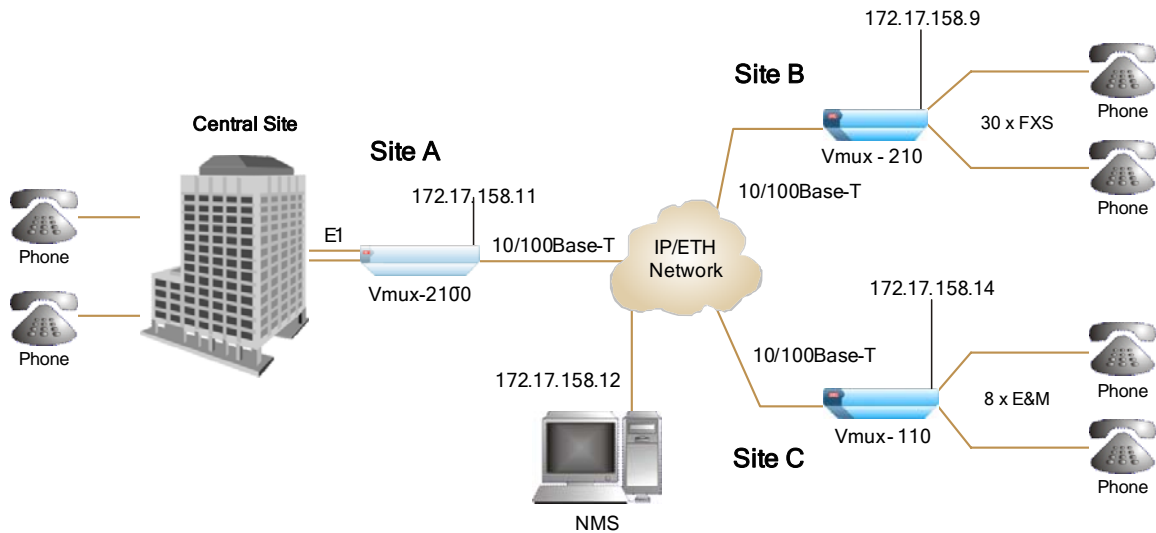
## Configuring a Typical Application

This chapter provides detailed instructions for setting up a typical application using a Vmux-110 (8 E&M) and a Vmux-210 (30 FXS) operating opposite a central Vmux-2100 unit over an IP network, and contains the following sections:

- Configuring the Vmux Units for Management
- Connecting the Vmux Units to the Management Station
- Configuring the Network Management Station
- Creating Bundles (Circuits)

### Application

*Figure 4-1* illustrates a typical TDM application, in which a Vmux-110 and a Vmux-210 operate opposite a central Vmux-2100 over an IP network. Two E1 trunks are transmitted by the central Vmux-2100 over an IP network to two remote Vmux units.



*Figure 4-1. Typical Application with a Vmux-110 and a Vmux-210 opposite a Vmux-2100*

## Configuration Sequence

The recommended configuration procedure for this application includes the following steps:

1. Configure all three Vmux units for management, via an ASCII terminal.
2. Install the Vmux units in their locations and connect their cables.
3. Using the SNMPc map, add the managed elements (MEs/network nodes).
4. Using the RADview Service Center, create bundles/circuits.

---

### 4.1 Configuring the Vmux Units for Management

The recommended configuration procedure is similar for all three Vmux units, except that each unit should be assigned a unique IP address. The configuration for each Vmux device includes the following steps:

- Connect an ASCII terminal to Vmux
- Log in as Superuser (su)
- Configure the host IP settings
- Save the configuration
- Configure the SNMP management settings
- Save the configuration

**Note**

*You must save the selected values at each screen by pressing @ (Shift+2) to update the Vmux-110 configuration database. If the database is not updated, Vmux-110 discards the new user settings when it is reset. You can save selected values at any stage of the configuration procedure.*

## Connecting an ASCII Terminal and Logging in

1. Configure an ASCII terminal with the following settings:
  - One start bit
  - Eight data bits
  - No parity
  - One stop bit
  - No flow control
  - VT100 emulation.
2. Connect an ASCII terminal to the unit's Control port.
3. Press <Enter> several times (to allow the unit to detect the rate).
4. Initiate the control session by entering the user name (su) and password.

## Configuring the Host IP Settings

1. Display the Host IP menu (**Configuration** > **System** > **Management** > **Host IP**).
2. Enter the IP address, subnet mask and default gateway values, according to the parameters in the following table:

*Table 4-1. Typical Application - Host IP Settings*

Site	Device Type	IP Address	Subnet Mask	Gateway
A	Vmux-2100	172.17.158.11	255.255.255.0	172.17.158.1
B	Vmux-210	172.17.158.9	255.255.255.0	172.17.158.1
C	Vmux-110	172.17.158.14	255.255.255.0	172.17.158.1

**Note**

*If they are enabled, you must first disable the router and DHCP in order to manually configure the host IP settings of Vmux-110 and 210. Vmux-2100 does not contain a router.*

3. Enter the SNMP values for: read, write, and trap communities, according to the parameters in the following table:

*Table 4-2. Typical Application - SNMP Settings*

Read Community	Write Community	Trap
public	Private	Public

4. Save the changes to the configuration database, by pressing @ (Shift+2).

## Configuring the Manager List

1. Display the Manager List menu (**Configuration** > **System** > **Management** > **Manager List**).
2. Set the manager IP Address to 172.17.158.12. If your Network Management Station (NMS/Manager) has a different IP address, substitute the correct IP address of your NMS.

**Note**

*If your Network Management Station (NMS/Manager) has a different IP address, substitute the correct IP address of your NMS.*

3. Save the changes to the configuration database, by pressing @ (Shift+2).

---

## 4.2 Connecting the Vmux Units to the Network Management Station

Vmux units can be managed by a Network Management Station (NMS) that is located on the LAN (hub or switch) connected to the one of the unit's Ethernet network (ETH-NET) ports. Install the physical devices and connect their cables, according to the network diagram in *Figure 4-1*.

- **To connect a Vmux unit to the Network Management Station:**
  1. Connect the Network Management Station to the LAN (hub or switch).
  2. Connect one of the Vmux's Ethernet network (ETH-NET) ports to the LAN.

---

## 4.3 Configuring the Network Management Station

Before you can configure the circuits in RADview-SC/Vmux, you must first use the SNMPc Management Console to:

- Launch the SNMPc Management Console
- Create the Vmux nodes
- Define the Manager List
- Read the Configuration

### Launching the SNMPc Management Console

The SNMPc Management Console is used to create and configure the network nodes, so that the devices are available for management in the RADview Service Center. Before you can create and manage the network nodes, you must first launch the SNMPc Management Console.

- **To launch the SNMPc Management Console:**
  - From the Windows **Start** menu, select **All Programs > Network Manager > RADview 32**.

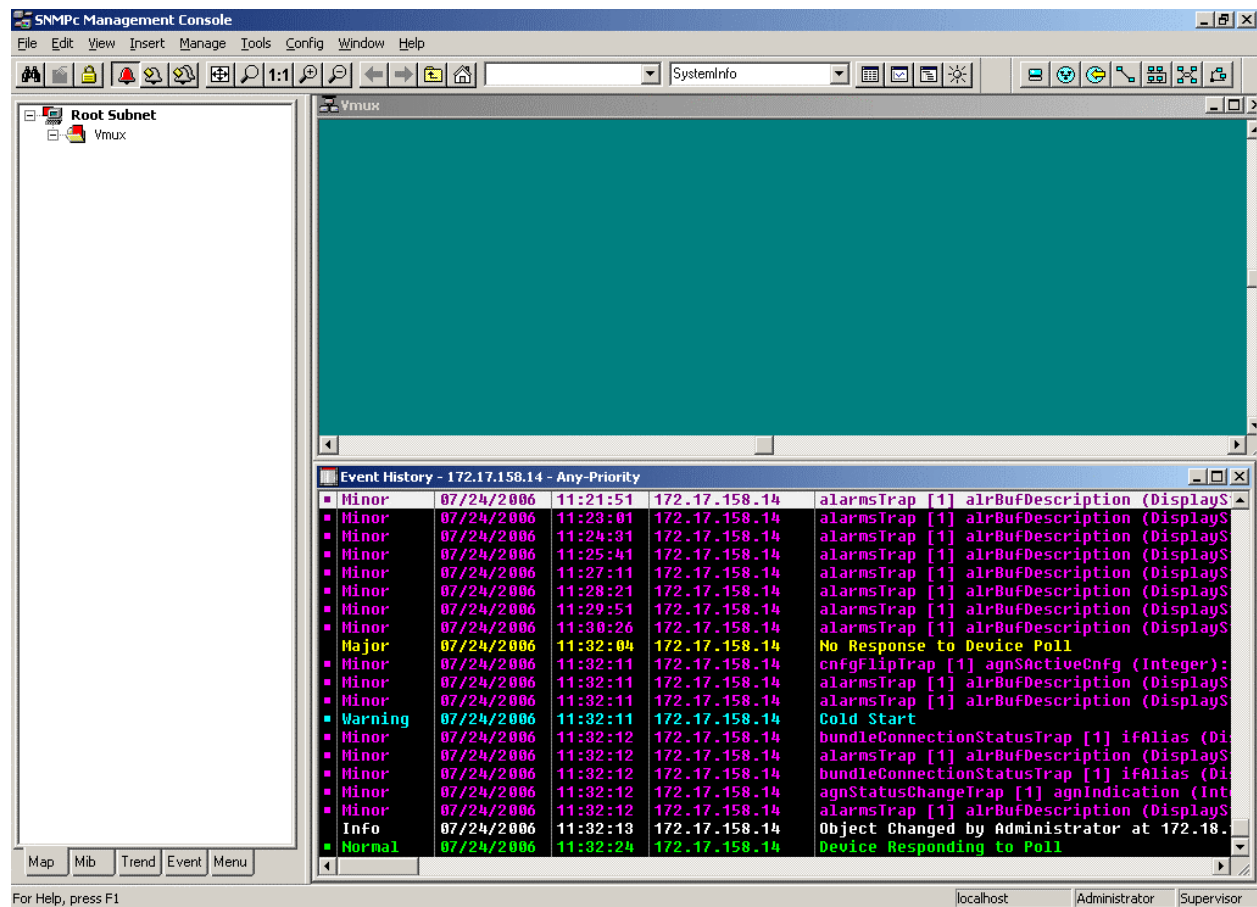


Figure 4-2. SNMPc Management Console

## Creating the Network Nodes

Before you can configure the circuits in RADview-SC/Vmux, for each device you must first:

- Create the Vmux nodes in the SNMPc Management Console map, according to the following table.

Table 4-3. Typical Application - Host IP Settings

Site	Device Type	IP Address	Network Mask	Gateway
A	Vmux-2100	172.17.158.11	255.255.255.0	172.17.158.1
B	Vmux-210	172.17.158.9	255.255.255.0	172.17.158.1
C	Vmux-110	172.17.158.14	255.255.255.0	172.17.158.1

- To add a Vmux device to the SNMPc Management Console map:
  1. From the SNMPc map **Insert** menu, select **map Object > device....**

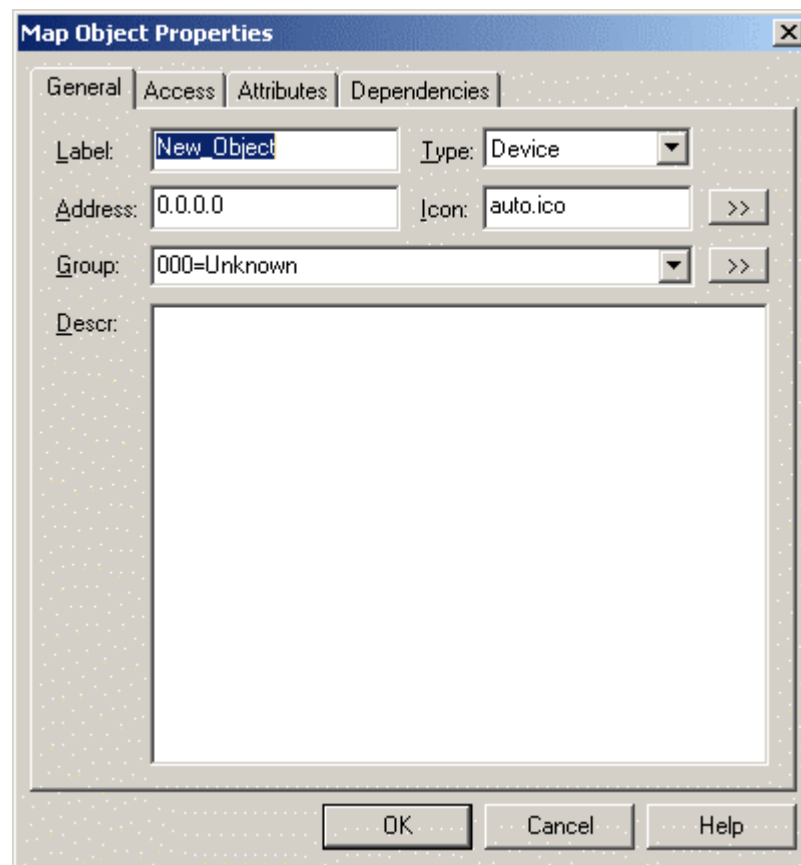


Figure 4-3. Map Object Properties - General Tab

2. In the **Label** field, type the Vmux unit's IP Address.

The **Label** field defines the name assigned to the node.

3. In the **Address** field, type the Vmux unit's IP Address.
4. Click the **Access** tab.

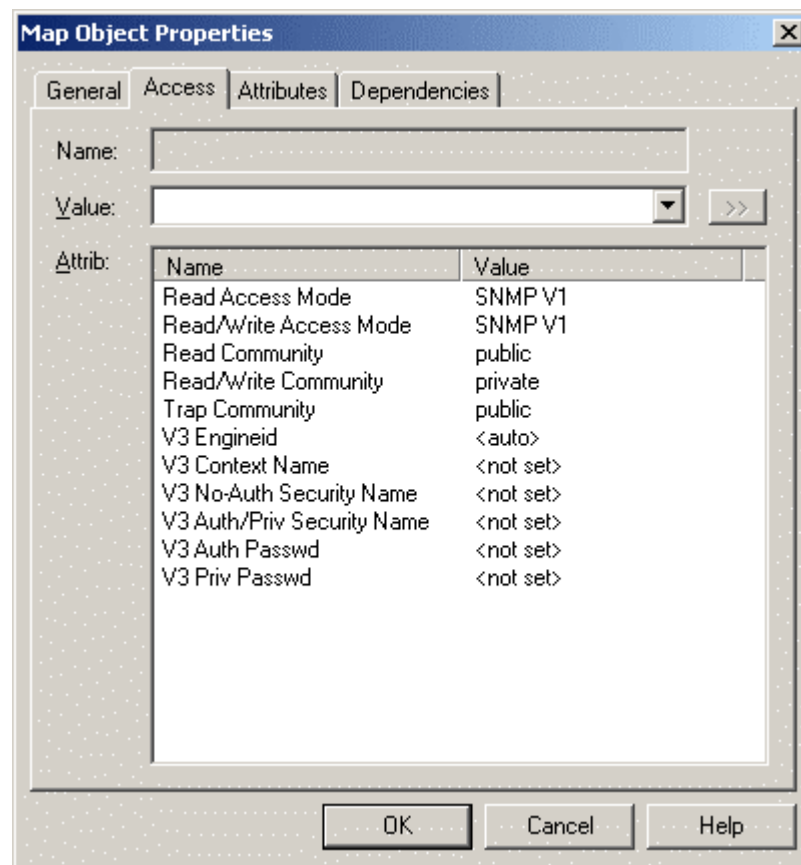


Figure 4-4. Map Object Properties - Access Tab

5. In the **Attrib** area, click **Read Community**.
6. In the **Value** field, select public.
7. In the **Attrib** area, click **Read/Write Community**.
8. In the **Value** field, select private.
9. In the **Attrib** area, click **Trap Community**.
10. In the **Value** field, select public.
11. Click **OK**.

The Vmux icon appears on the SNMPc Management Console map.

12. Repeat this procedure for the remaining two Vmux devices.

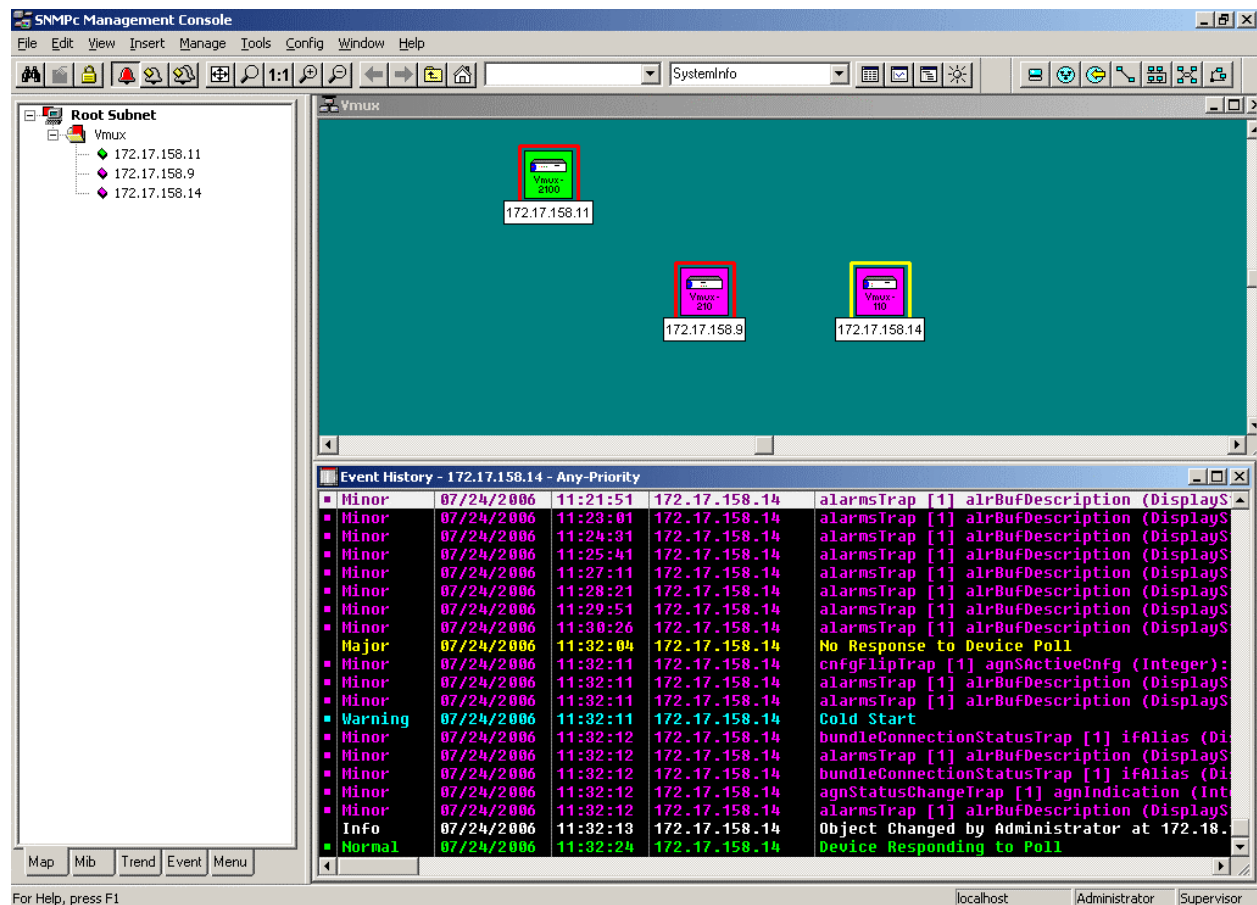


Figure 4-5. SNMPc Management Console with 3 Nodes

## Configuring the Nodes for Management

Before you can configure the circuits in RADview-SC/Vmux, for each device you must first:

- Define the Manager List
  - Read the Configuration to synchronize the Edit mode with the Agent.
- **To configure a Vmux node for Management:**
1. From the SNMPc Management Console map, Double click on the device icon to open its Element Manager application.



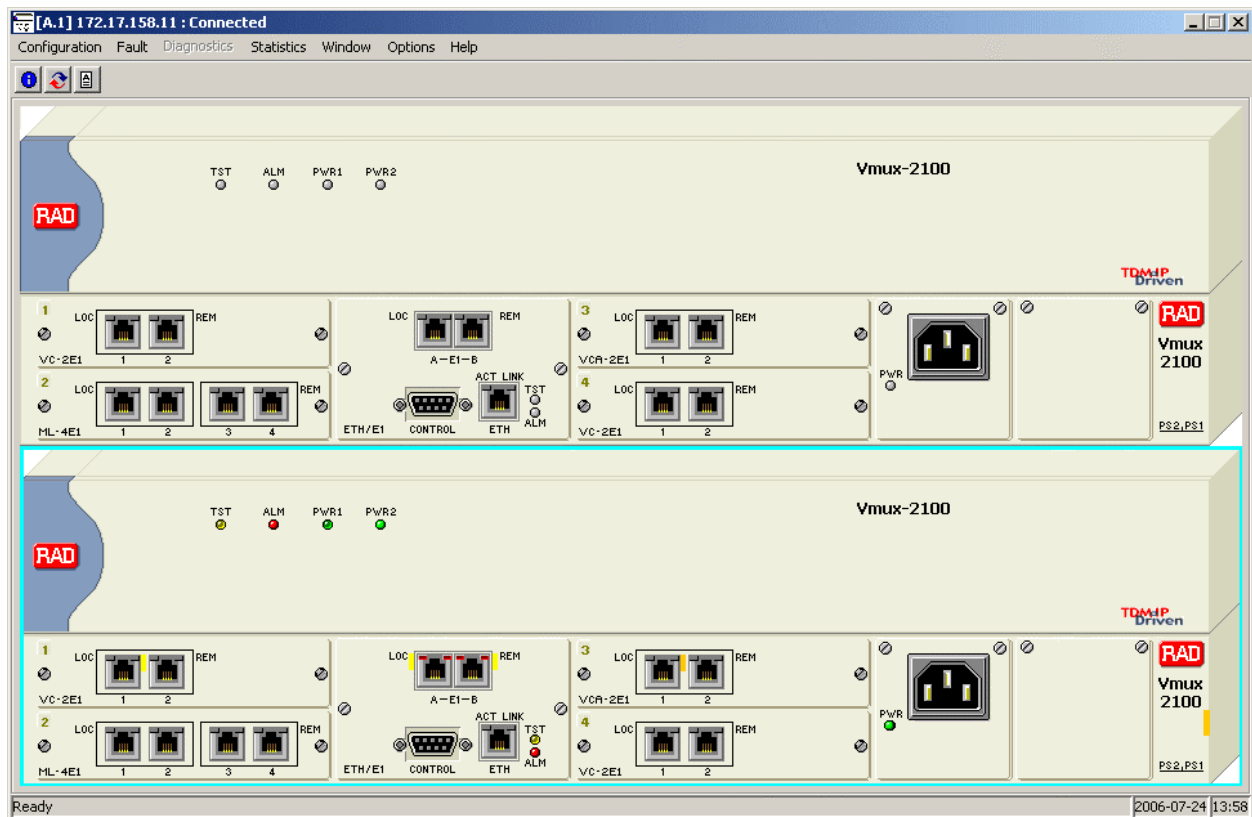


Figure 4-6. Element Manager - Vmux-2100 Example

2. Click the lower half of the Element Manager window, to focus on Agent mode.
3. From the **Options** menu, select **Manager List**.

The **Manager List** dialog box appears.

**Note**

*The Manager list is a list of trap destinations. The agent sends traps to the IP addresses in the Manager List.*

4. Enter the NMS IP Address: 172.17.191.12 (or whatever the correct NMS IP address is for your network).
5. Click **Set**.

The **Manager List** dialog box closes.

6. Click the top half of the Element Manager window, to focus on Edit mode.
7. From the **Configuration** menu, select **Read**.

The **Read Config** dialog box appears.

8. Click **OK**.
9. Repeat this procedure for the remaining two Vmux devices.

## 4.4 Creating Bundles

In order for voice data to pass between the different Vmux devices, you must create bundles between each branch site and the central site (from Vmux-210 to Vmux-2100 and from Vmux-110 to Vmux-2100).

In order to create a bundle between two Vmux devices, you must:

- Launch the RADview Service Center
- Add sites
- Add element nodes to the sites
- Create a bundle of time slots between the device at the central site and the device at each remote site.

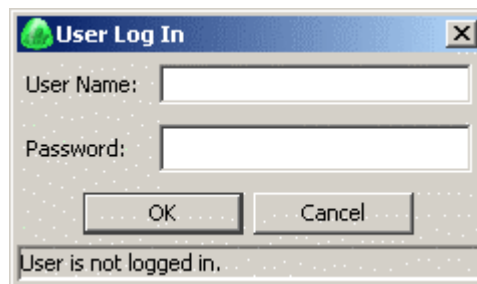
### Launching RADview-SC/Vmux

RADview-SC/Vmux (the RADview Service Center) is a graphical tool for managing Vmux network elements (nodes) and creating bundles between them. Before you can add Sites and Element Nodes, or create bundles, you must first launch the RADview Service Center.

► **To launch the RADview Service Center:**

1. From the Windows Start menu, select **All Programs > Network Manager > Service Center > SC-VMUX**.

The Vmux Service Center application window appears, and opens the **User Log In** dialog box.



*Figure 4-7. Typical Application - User Log In Dialog Box*

2. Enter your **User Name** and **Password** (for example: root and root) and click **OK**.

You are now logged in to the Vmux Service Center application.

## Adding Sites

Sites are containers that represent geographical groups of network elements (devices or element nodes). Before you can add network elements (nodes) to the Service Center, you must first create sites to contain those elements.

► **To create a new site:**

1. From the Vmux Service Center **Configuration** menu, select **Add Site**.
2. Type the name of the site: **Site A**
3. Click **Set**.

The newly created site appears on the Service Center map.

4. Repeat this procedure for the remaining two sites: **Site B** and **Site C**.

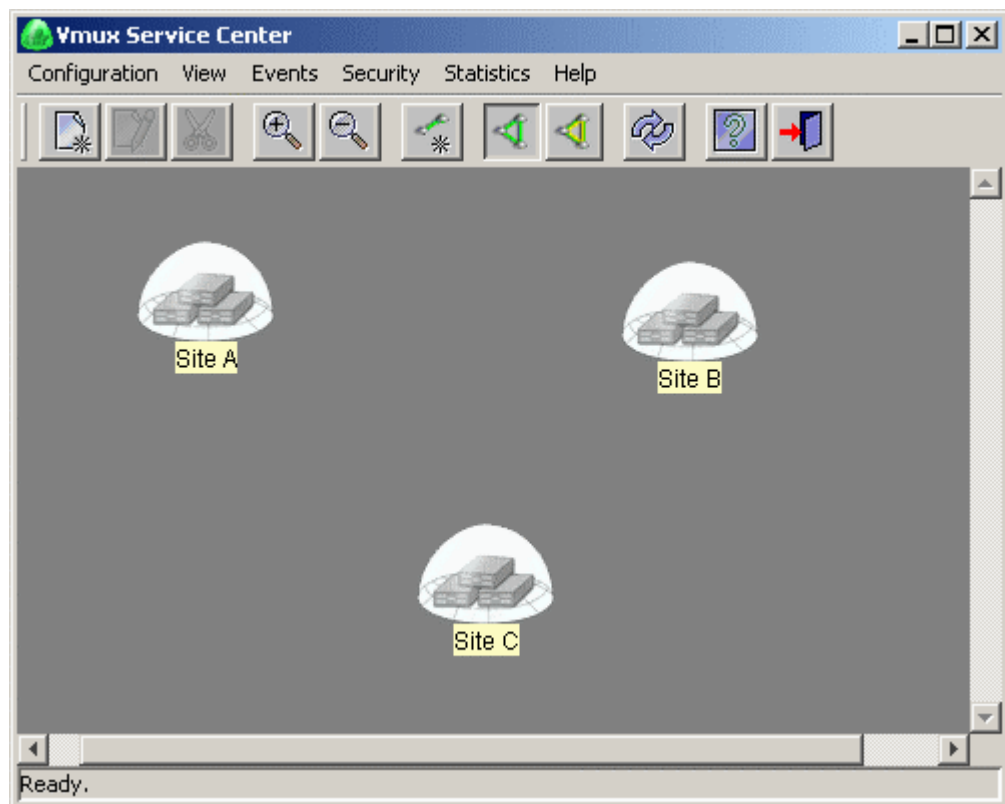


Figure 4-8. Typical Application - Service Center Map with 3 Empty Sites

## Adding Element Nodes to the Sites

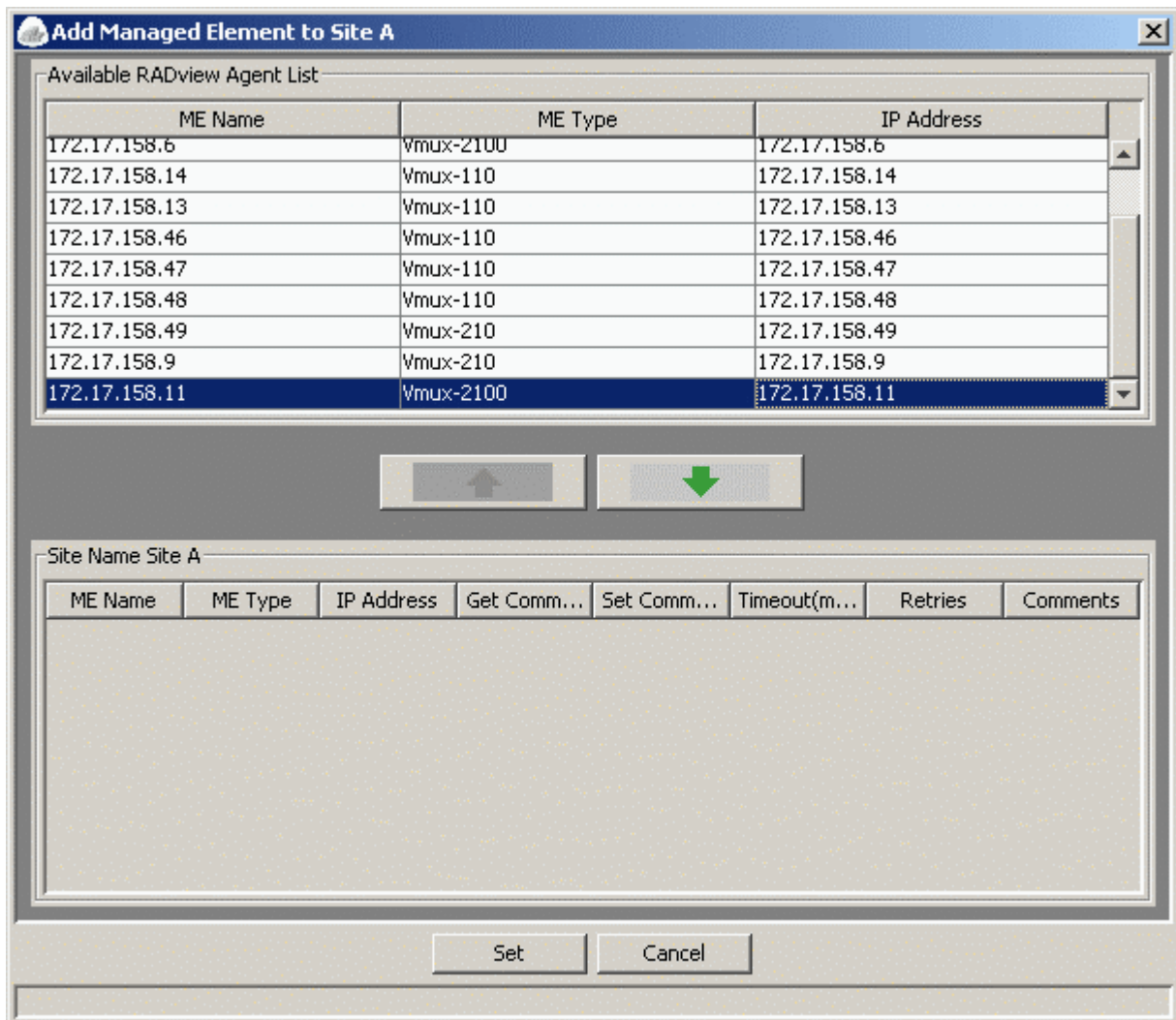
In order to manage a network element from the Service Center, you must first add it to a site, as a managed element node.

► **To add a managed element (ME) to a site:**

1. From the Vmux Service Center map, Double Click **Site A**.

The **Site A** window appears.


2. From the **Site A** window **Configuration** menu, select **Add ME...**



*Figure 4-9. Add Managed Element to Site A Dialog Box*

3. Select the **Vmux-2100** row (172.17.158.11) to select it.



4. Click  to add the selected ME to the site.
5. Click **Set**.
6. The **Add Managed Element to Site A** dialog box closes.
7. Close the **Site A** window.
8. Repeat this procedure for the remaining two devices, adding one device to each site, according to the following table:

*Table 4-4. Typical Application - Sites and Devices*

Site Name	Device Type	Device IP Address
Site A	Vmux-2100	172.17.158.11
Site B	Vmux-210	172.17.158.9
Site C	Vmux-110	172.17.158.14

When you have added all three devices, the Service Center map will contain three sites, with one Vmux unit in each site.

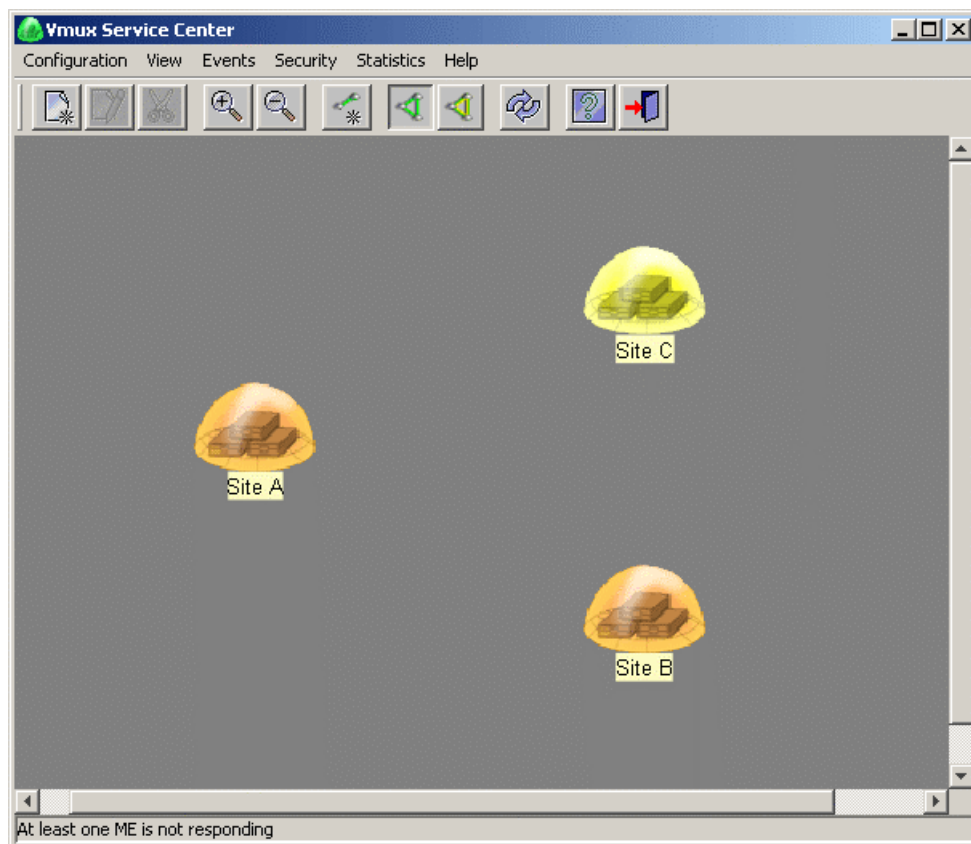


Figure 4-10. Typical Application - Service Center Map with 3 Populated Sites

## Creating Bundles

Bundles are groups of timeslots. In order for voice data to pass between the different Vmux devices, you must create bundles between each branch site and the central site (from Vmux-210 to Vmux-2100 and from Vmux-110 to Vmux-2100).

► **To create a bundle between two Vmux devices:**

1. From the Vmux Service Center map, hold down the CTRL key and left-click on the **Site A**.
2. Left-click **Site A** and drag to **Site B**.

A line appears from **Site A** as you drag from **Site A**. When you finish dragging, the **Add Circuit** wizard starts.

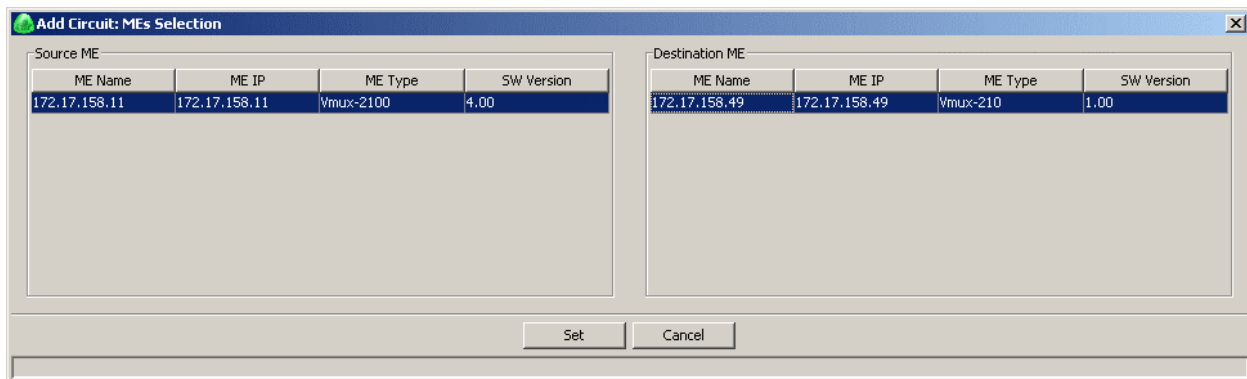


Figure 4-11. Typical Application - Add Circuit: ME Selection

3. Select the Source ME and the Destination ME.
4. Click **Set**.

The **Add Circuit** dialog box closes and the **State 1** dialog box appears.

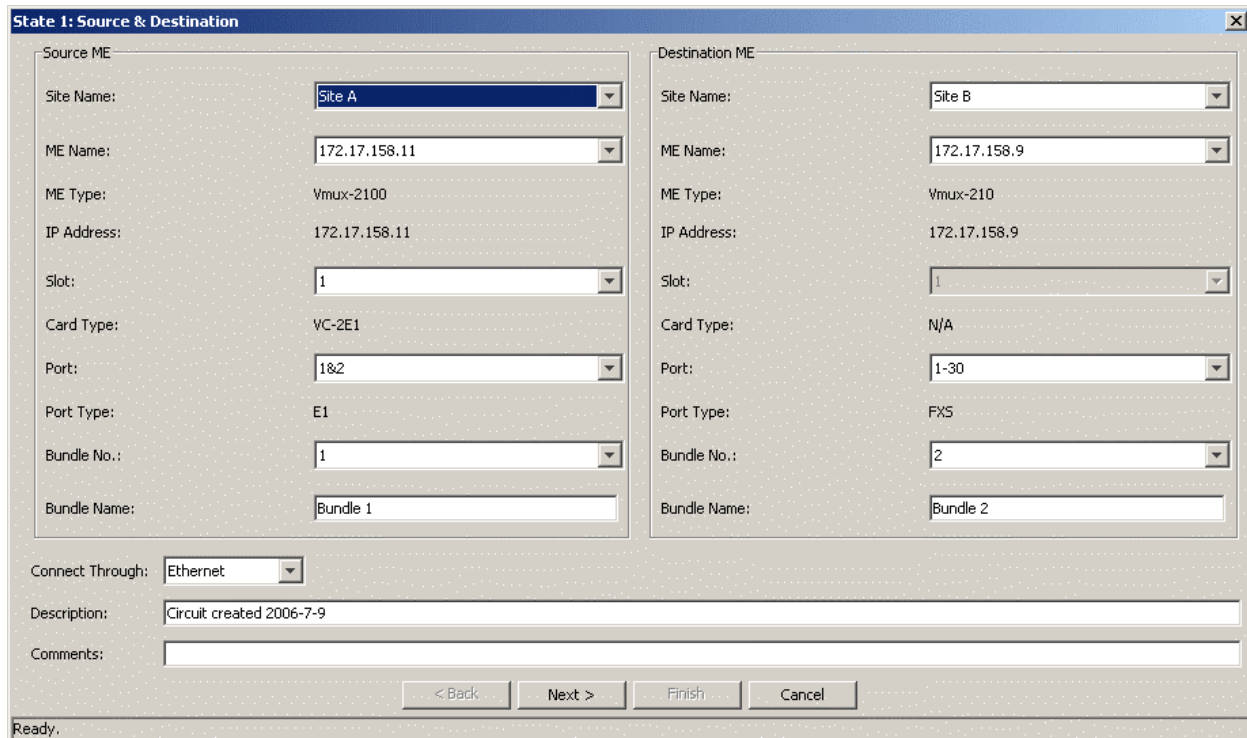


Figure 4-12. Typical Application - State 1 Dialog Box

5. Click **Next**.
6. If a reset warning dialog box appears, click **OK**.

Figure 4-13. Typical Application - State 2 Dialog Box

**Note**

When creating bundles, you may want to configure additional parameters. For more information about configuring bundle parameters, see the [RADview-SC/Vmux User's Manual](#).

7. Click **Next**.

The State 3 dialog box appears (see [Figure 4-14](#)).

8. To assign a time slot, drag from the Source Port cell to the Destination Port cell, according to the following table. For the first part of our example (creating a bundle from **Site A** to **Site B**), you can use time slots 10, 11, and 12. Later, you can use 5, 6, and 7.

Table 4-5. Assigning Time Slots to Bundles

Bundle Being Created From	Source Port	Destination Port
Site A to Site B	10	10
	11	11
	12	12
Site A to Site C	5	5
	6	6
	7	7

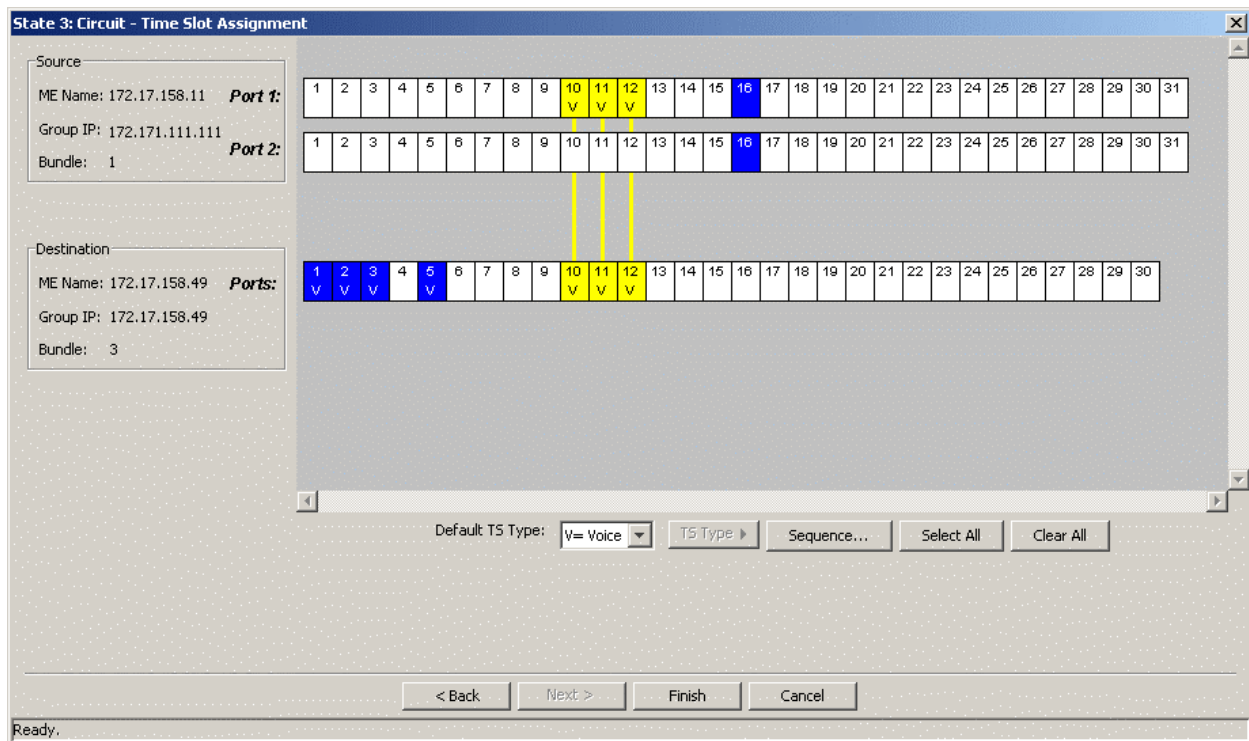


Figure 4-14. Typical Application - State 3 Dialog Box (After Adding Bundles)

9. Click **Finish**.

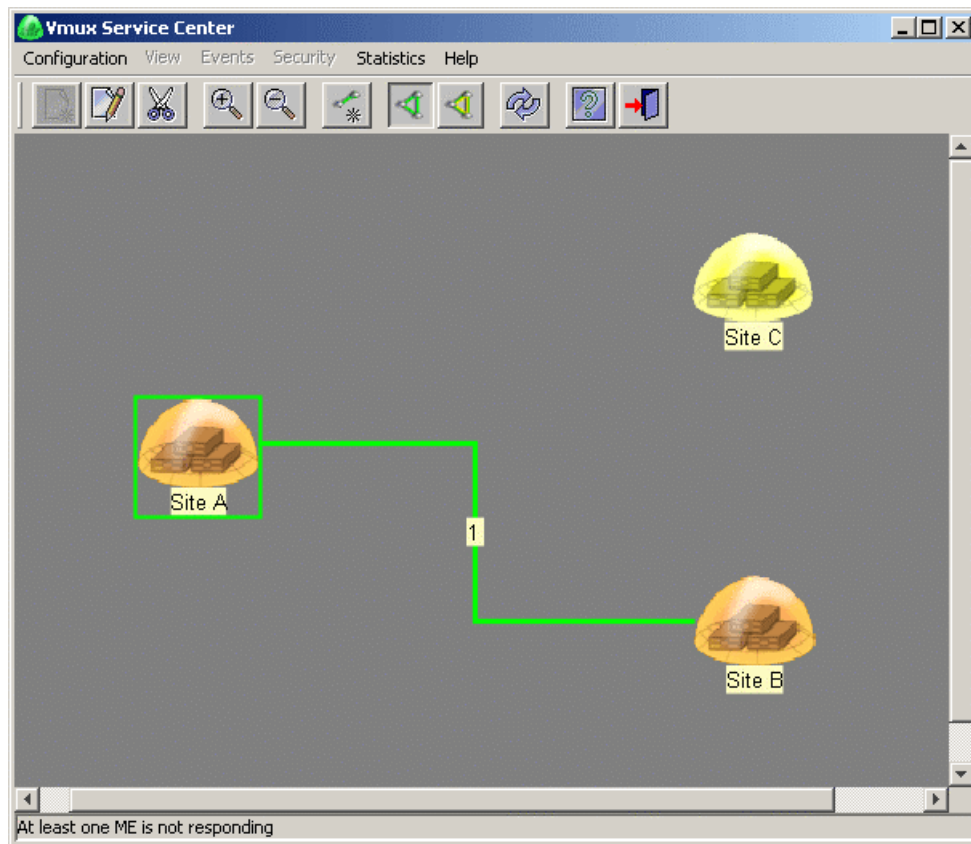
You have defined a bundle using RADview Service Center.

10. Verify that the line from **Site A** to **Site B** turns green.

**Note**

*The link remains green as long as the service is connected. If the service is down then the link turns red.*





*Figure 4-15. Typical Application - Service Center Map with One Bundle*

11. Repeat this procedure (from Step 1 to Step 10) but this time, create the bundle from **Site A** to **Site C** and use time slots 5, 6, and 7.

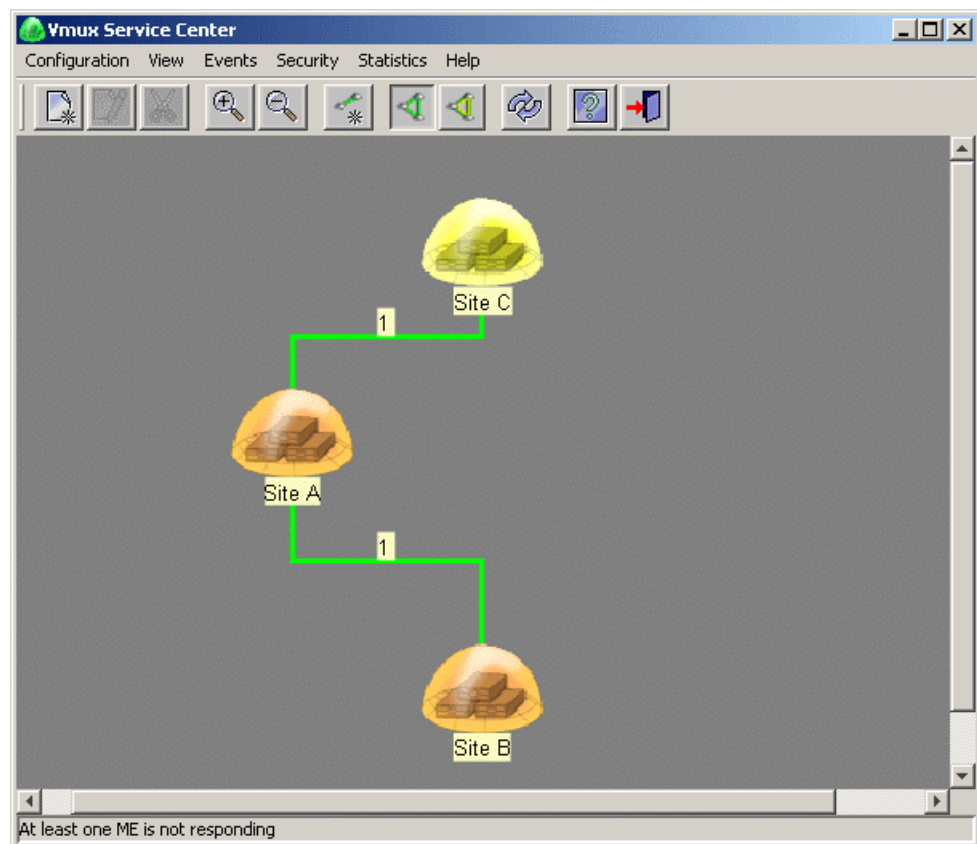


Figure 4-16. Typical Application - Service Center Map with 2 Connected Bundles

# Chapter 5

## Security Management

This chapter describes how to manage Vmux-110 security, and includes the following sections:

- Setting Management Access Authorizations
- UNIX Users and Permissions

### 5.1 Setting Management Access Authorizations

The **Access** command allows you to enable or disable management via Telnet. Use this command to tighten security or to enable access, when necessary.

► To enable or disable Telnet access:

1. In Edit mode, select the device.
2. From the **Options** menu, select **Access**.

The Access dialog box appears (*Error! Reference source not found.*).

3. Configure Telnet access and click <**Set**>.

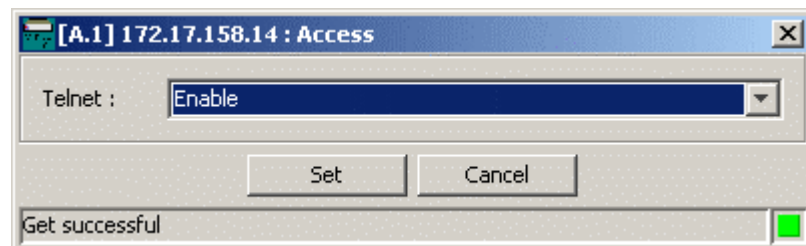


Figure 5-1. Access Dialog Box

Table 5-1. Telnet and Web Access Parameters

Parameter	Possible Values/Remarks
Telnet	Enable/Disable accessing the device via Telnet <b>Enable</b> - All users are allowed to access the device via Telnet Access. <b>Disable</b> - No one is allowed to access the device via Telnet. <b>Manager List Only</b> - Only manager stations listed in the manager's list are allowed to access the device via Telnet. Default: <b>Enable</b>
[Set]	Click < <b>Set</b> > to send new values to the Agent
[Cancel]	Click < <b>Cancel</b> > to close the Access dialog box

---

## 5.2 UNIX Users and Permissions

RADview/OV, when running on a UNIX based operating system, supports the users and permissions security feature. Only an Administrator can add or remove nodes from the Service Center map. For further details, refer to the chapter on Security in the *RADview SC/Vmux System Manual*.

# Chapter 6

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## Performance Management

This chapter describes how to monitor Vmux-110 performance and explains how to perform the following tasks:

- Setting the Polling Interval
- Viewing Bundle Connection Statistics
- Viewing Current Statistics for an E1/T1 Port
- Viewing Intervals Statistics for an E1/T1 Port
- Viewing Data Stream Statistics for an E1/T1 Port
- Viewing Receive Frame Types Statistics for a LAN Port
- Viewing Transmit Frame Types Statistics for a LAN Port
- Viewing Errors Statistics for a LAN Port
- Viewing Frame Sizes Statistics for a LAN Port
- Viewing Statistics for an E1/T1 or Serial Port Link

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### 6.1 Introduction

Vmux-110 continuously collects performance statistics for its various ports and for bundle connections. The collected data enables network administrators to monitor the transmission performance, and thus the quality of service provided to users.

RADview can display Current Statistics - information and graphs displaying an immediate view of the statistics counters. The Statistics window is refreshed periodically, according to the Polling Interval, or manually, whenever you click the **<Poll>** button.

RADview can also display Intervals Statistics, information and graphs that aggregate the statistics over 15 minute intervals.

**Note**

*All performance management is performed in Agent mode. Access Agent mode by selecting the bottom image of the device.*

---

## 6.2 Setting the Polling Interval

Use the **Statistics > Polling Interval** command to enable polling and set the interval between polling attempts. Statistics windows (other than Interval Statistics) are refreshed periodically, according to the Polling Interval, or manually, whenever you click the **<Poll>** button.

➤ **To configure the polling interval:**

1. In Agent mode, select a port.
2. From the **Statistics** menu, select **Polling Interval**.
3. In the **Polling Interval** field, select the desired value.
4. Check **Polling Enable** to enable polling (for E1 or T1 ports only).
5. Click **<Set>**.

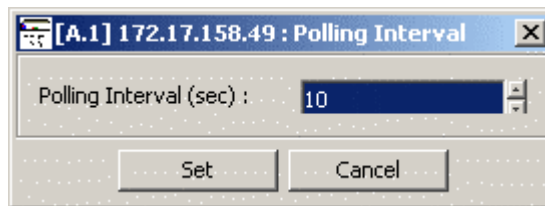


Figure 6-1. Polling Interval Dialog Box

Table 6-1. Polling Interval Parameters

Parameter	Possible Values / Remarks
Polling Interval (sec)	Time between polling attempts <b>5... 60</b> (in steps of 5) Default: <b>10</b>
[Set]	Click <b>&lt;Set&gt;</b> to save polling interval settings
[Cancel]	Click <b>&lt;Cancel&gt;</b> to close the Polling Interval dialog box without saving changes

## 6.3 Viewing Bundle Connection Statistics

The **Bundle Connection Table...** command enables you to view statistics for all IP bundle connections.

➤ **To view IP Bundle statistics:**

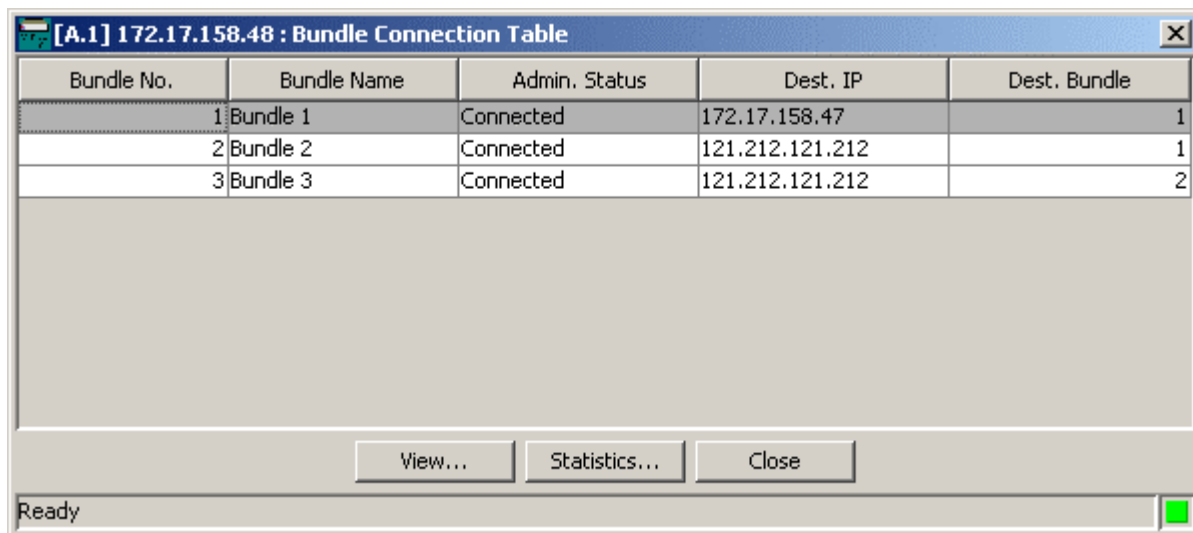
1. In Agent mode, select the device.

2. From the **Statistics** menu, select **Bundle Connection Table...**

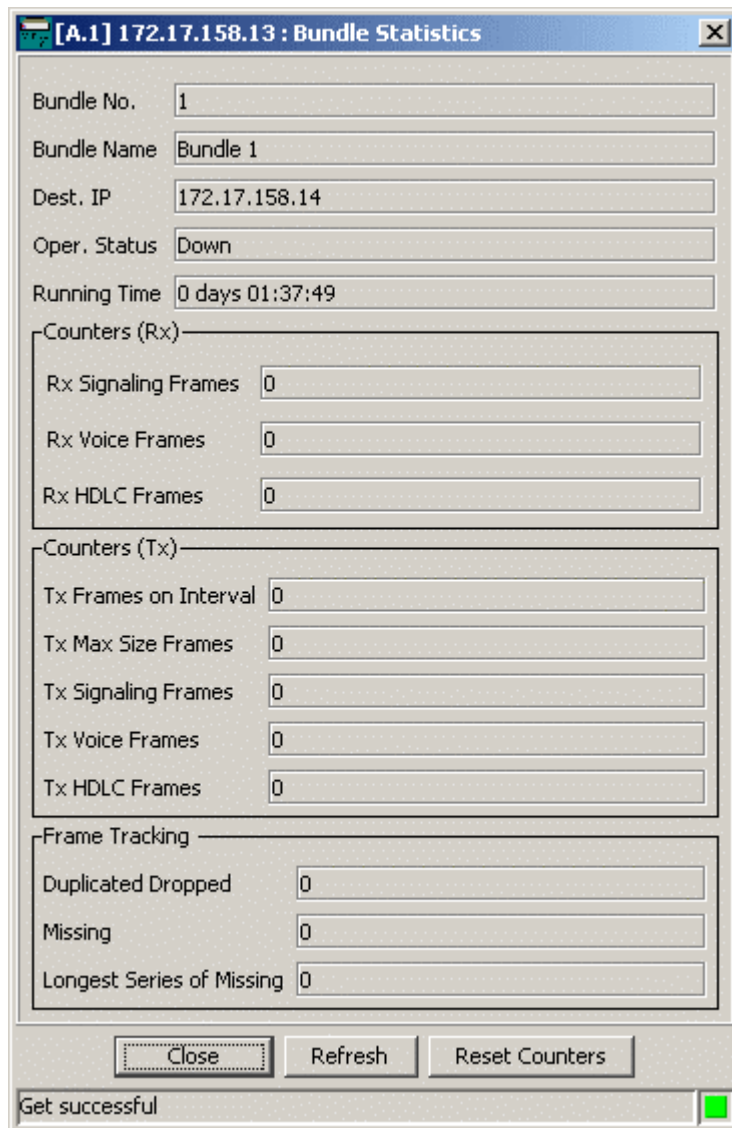
The Bundle Connection Table Appears.

For more detailed configuration information about a specific bundle entry in the Bundle Connection Table, select a bundle and click <**View**>. The parameters for the **Bundle Connection Table** dialog box ([Figure 6-2](#)) and for the detailed configuration information displayed for the selected bundle are documented in [Chapter 3](#).

3. Select an entry in the list and click <**Statistics...**>. The Bundle statistics dialog box that appears is illustrated in [Figure 6-3](#). The parameters are defined in [Table 6-2](#).



*Figure 6-2. Bundle Connection Table Dialog Box*



The dialog box is titled "[A.1] 172.17.158.13 : Bundle Statistics". It contains several input fields and sections for statistics.

Bundle No.

Bundle Name

Dest. IP

Oper. Status

Running Time

Counters (Rx)

Rx Signaling Frames	<input type="text" value="0"/>
Rx Voice Frames	<input type="text" value="0"/>
Rx HDLC Frames	<input type="text" value="0"/>

Counters (Tx)

Tx Frames on Interval	<input type="text" value="0"/>
Tx Max Size Frames	<input type="text" value="0"/>
Tx Signaling Frames	<input type="text" value="0"/>
Tx Voice Frames	<input type="text" value="0"/>
Tx HDLC Frames	<input type="text" value="0"/>

Frame Tracking

Duplicated Dropped	<input type="text" value="0"/>
Missing	<input type="text" value="0"/>
Longest Series of Missing	<input type="text" value="0"/>

Buttons: Close, Refresh, Reset Counters

Status: Get successful ■

*Figure 6-3. Bundle Statistics Dialog Box*



Table 6-2. Bundle Statistics Parameters

Parameter	Possible Values / Remarks
Bundle No.	<b>1...12</b> Index number of bundle
Bundle Name	Name of bundle
Dest. IP	<b>0.0.0.0...255.255.255.255</b> IP address of the destination mux
Oper. Status	<b>Up, Down, HW Mismatch</b>
Running Time	The system up time, i.e., the time (in hundredths of a second) since the network management portion of the system was last re-initialized. Format: DD days HH:MM:SS
<b>Counters (Rx)</b>	
Rx Signaling Frames	Number of signaling frames received <b>Note:</b> For FXS ports only
Rx Voice Frames	Number of voice frames received
Rx HDLC Frames	Number of HDLC frames received
<b>Counters (Tx)</b>	
Tx Frames on Interval	Number of transmitted frames in the interval since the system was last re-initialized
Tx Max Size Frames	Number of maximum sized frames transmitted
Tx Signaling Frames	Number of signaling frames transmitted <b>Note:</b> For FXS ports only
Tx Voice Frames	Number of voice frames transmitted
Tx HDLC Frames	Number of HDLC frames transmitted
<b>Frame Tracking</b>	
Duplicated Dropped	Number of packets dropped due to being duplicated. A duplicated packet is a packet that has the same sequence number as a previously received packet.
Missing	Number of packets that are missing. A missing packet is a packet that was expected, according to the current sequence number, but was never received.
Longest Series of Missing	Longest series of consecutive missing sequential numbers. Missing sequential numbers represent missing packets that were expected to be received successively.
[Close]	Click <Close> to close the Bundle Statistics dialog box
[Refresh]	Click <Refresh> to update the Bundle Statistics
[Reset Counters]	Click <Reset Counters> to reset the Bundle Statistics Counters for the displayed bundle to 0.

## 6.4 Viewing Current Statistics for an E1/T1 Port

Use the **Current** command to display E1/T1 port statistics for the current 15-minute interval. The Time Elapsed field shows how much time passed since the beginning of the current interval. Statistics are displayed in either table or graph format.

- To view the current statistics for an E1/T1 Port:
1. In Agent mode only, select an E1 or T1 port.
  2. From the **Statistics** menu, select **Current**
  3. The Current Statistics dialog box shows the amount of time that error(s) exist(s) in the current measurement interval. Each interval is 15 minutes (900 seconds).

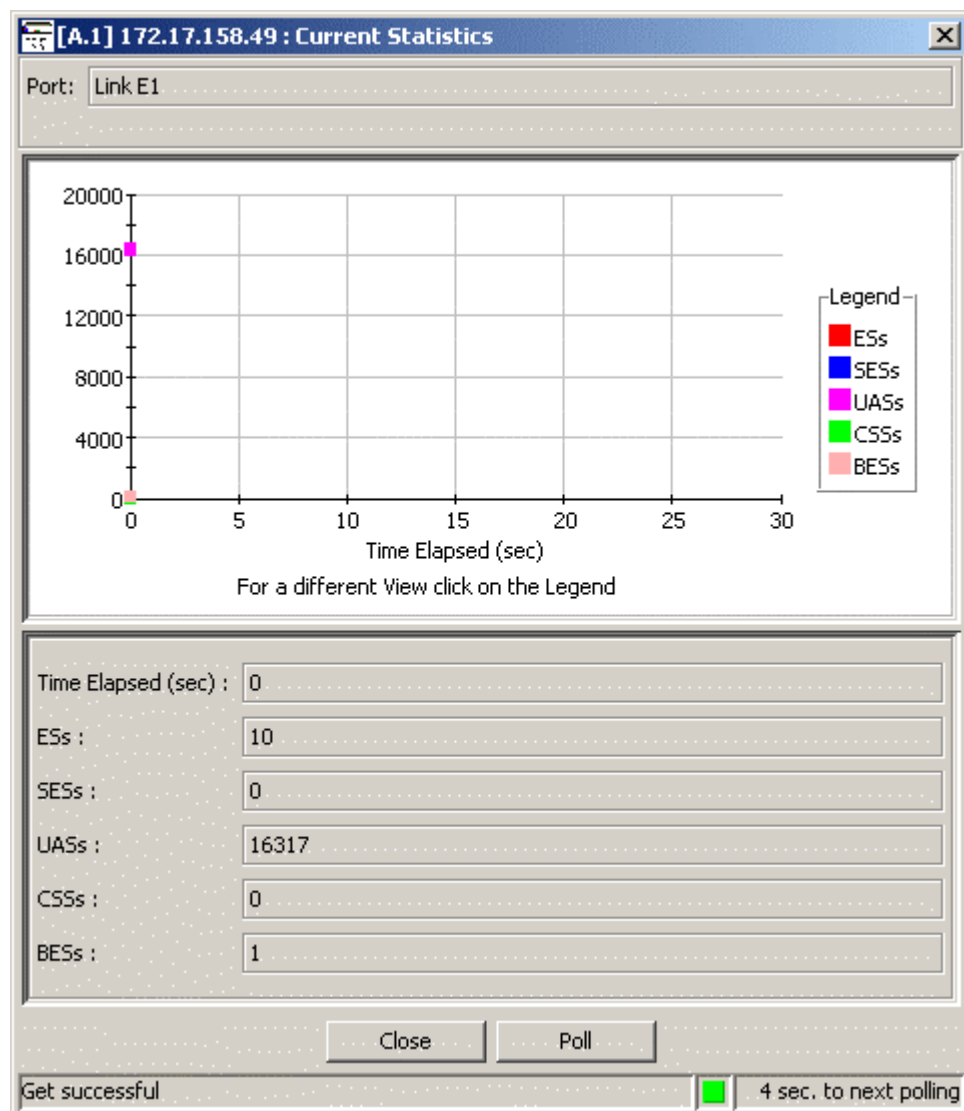


Figure 6-4. Current Statistics

Table 6-3. Current Statistics Parameters

Parameter	Possible Values / Remarks
Port	Link E1, Link T1, Channel E1, Channel T1
<b>Status Bar</b>	
Countdown Timer	Displays number of seconds to next polling action. Only in use when polling is enabled.
Timer	Displays system time as of the last polling/refresh action.
<b>Current Data</b>	
Time Elapsed (sec)	Number of seconds since the beginning of the current 15-minute interval <b>0..899</b>
ESs	Errored Seconds. Number of seconds in the current interval in which an event or alarm occurred
SESS	Severe Errored Seconds. Number of seconds in the current interval in which at least 320 CRC events or one OOF event occurred
UASs	Unavailable Seconds. Number of seconds in the current interval in which a failed signal state exists. A failed signal state occurs after 10 consecutive severe errored seconds. This state is cleared only after the Vmux processes 10 consecutive seconds of data without an SES
CSSs	Controlled Slip Seconds. Number of seconds in the current interval in which at least one controlled SLIP event occurred
BESS	Bursty Errored Seconds. Number of seconds in the current interval in which 2 - 319 CRC events occurred
[Close]	Click <Close> to close the Current Statistics dialog box
[Poll]	Click <Poll> to update the information displayed in the dialog box

The Current Graph shows Vmux performance statistics in the current measurement interval. Each interval is 15 minutes (899 seconds). Lines of various colors represent a measurement item. A legend on the right side of the dialog box indicates the measurement items and their respective color indications.

For example, [Figure 6-4](#) shows that no errors occurred during the current interval.

The horizontal axis indicates the time elapsed (in seconds) since the beginning of the current measurement interval. When a new interval begins, RADview displays a new graph.

The vertical axis indicates the various values of the measurements. The origin of the axis represents 0. The highest point represents the maximum value of the measurements (maximum = 899).

## 6.5 Viewing Intervals Statistics for an E1/T1 Port

RADview can display Intervals Statistics, information and graphs that aggregate the statistics over 15 minute intervals. The **Intervals** command enables you to view E1 or T1 or port level interval statistics in both table and graph format.

- To view intervals statistics for an E1 or T1 Port:
  1. In Agent mode, select an E1 or T1 port.
  2. From the **Statistics** menu, select **Intervals Data**.

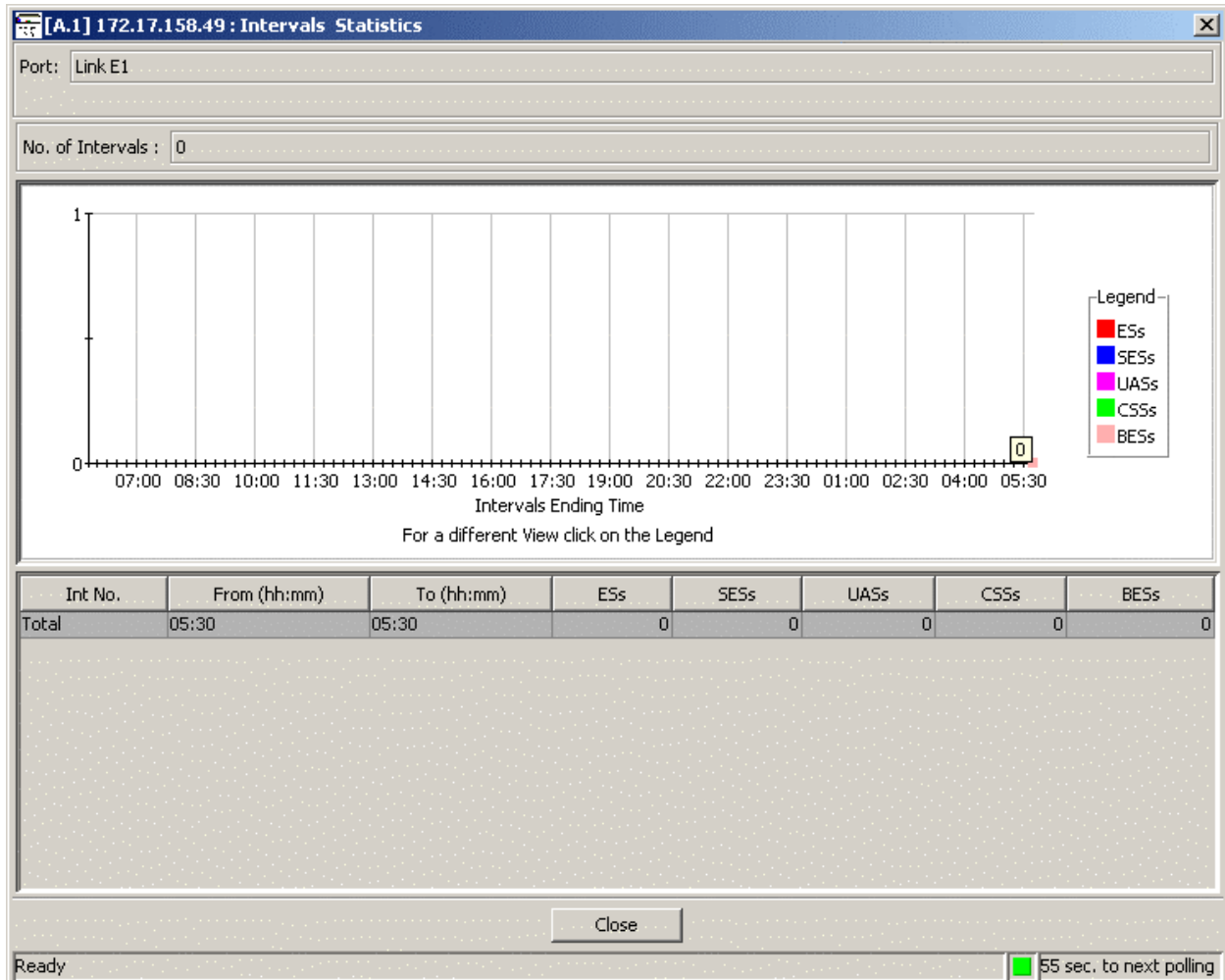


Figure 6-5. Intervals Statistics

Table 6-4. Intervals Statistics Parameters

Parameter	Possible Values / Remarks
Port	Link E1, Link T1, Channel E1, Channel T1
No. of Intervals	0...96
<b>Interval Data</b>	One row of each of the following data points for each interval in the table.
Int No.	<b>Total</b> , 1..N (number of the selected interval or group of intervals to examine)
From (hh:mm)	Start time of data to be examined When working with all intervals ( <b>Total</b> ), the value of N*15min.
To (hh:mm)	End time of data to be examined When working with all intervals ( <b>Total</b> ), the value of CurrentTime – ElapsedTime.
ESs	Errored Seconds. Number of seconds in this interval in which an event or alarm occurred
SESS	Severe Errored Seconds. Number of seconds in the current interval in which at least 320 CRC events or one OOF event occurred
UASs	Unavailable Seconds. Number of seconds in the current interval in which a failed signal state exists. A failed signal state occurs after 10 consecutive severe errored seconds. This state is cleared only after the Vmux processes 10 consecutive seconds of data without an SES
CSSs	Controlled Slip Seconds. Number of seconds in the current interval in which at least one controlled SLIP event occurred
BESS	Bursty Errored Seconds. Number of seconds in the current interval in which 2 - 319 CRC events occurred
[Close]	Click < <b>Close</b> > to close the Intervals Statistics

## 6.6 Viewing Data Stream Statistics for a Channel E1/T1 Port

The **Data Stream** command enables you to view T1 or E1 port level data stream statistics as a table.

► **To view data stream statistics for a Channel E1/T1 Port:**

1. In Agent mode only, select an E1/T1 port.
2. From the **Statistics** menu, select **Data Stream**.

The Data Stream Dialog box appears (see [Figure 6-6](#)).

3. Click the desired yellow Data Stream cell to select it.
4. Click < **Statistics...** >.

The Data Stream Statistics Dialog Box appears (see [Figure 6-7](#)).

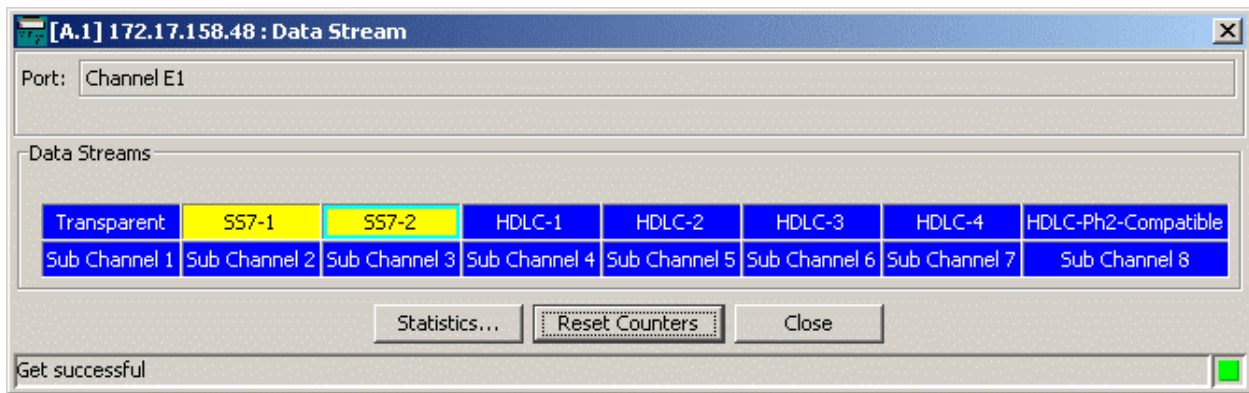


Figure 6-6. Data Stream Dialog Box

Table 6-5. Data Stream Parameters

Parameter	Possible Values/Remarks
Port	Channel E1, Channel T1
Data Streams	<p>Arranged in three groups:  <b>Transparent, SS7-1..SS7-2, HDLC-1..HDLC-4,</b>  <b>Sub Channel 1..Sub Channel 8</b></p> <p>Cells within each group are colored to indicate:            Selectable (Yellow) or Protected (Blue).</p>
[Statistics]	<p>Click &lt;<b>Statistics</b>&gt; to view the statistics for a selected cell.</p> <p>Disabled if no selectable (yellow) cell is selected.</p>
[Reset Counters]	<p>Click &lt;<b>Reset Counters</b>&gt; to reset the counters of selected port to 0.</p> <p>Disabled if no selectable (yellow) cell is selected.</p>
[Cancel]	Click < <b>Cancel</b> > to close the dialog box.

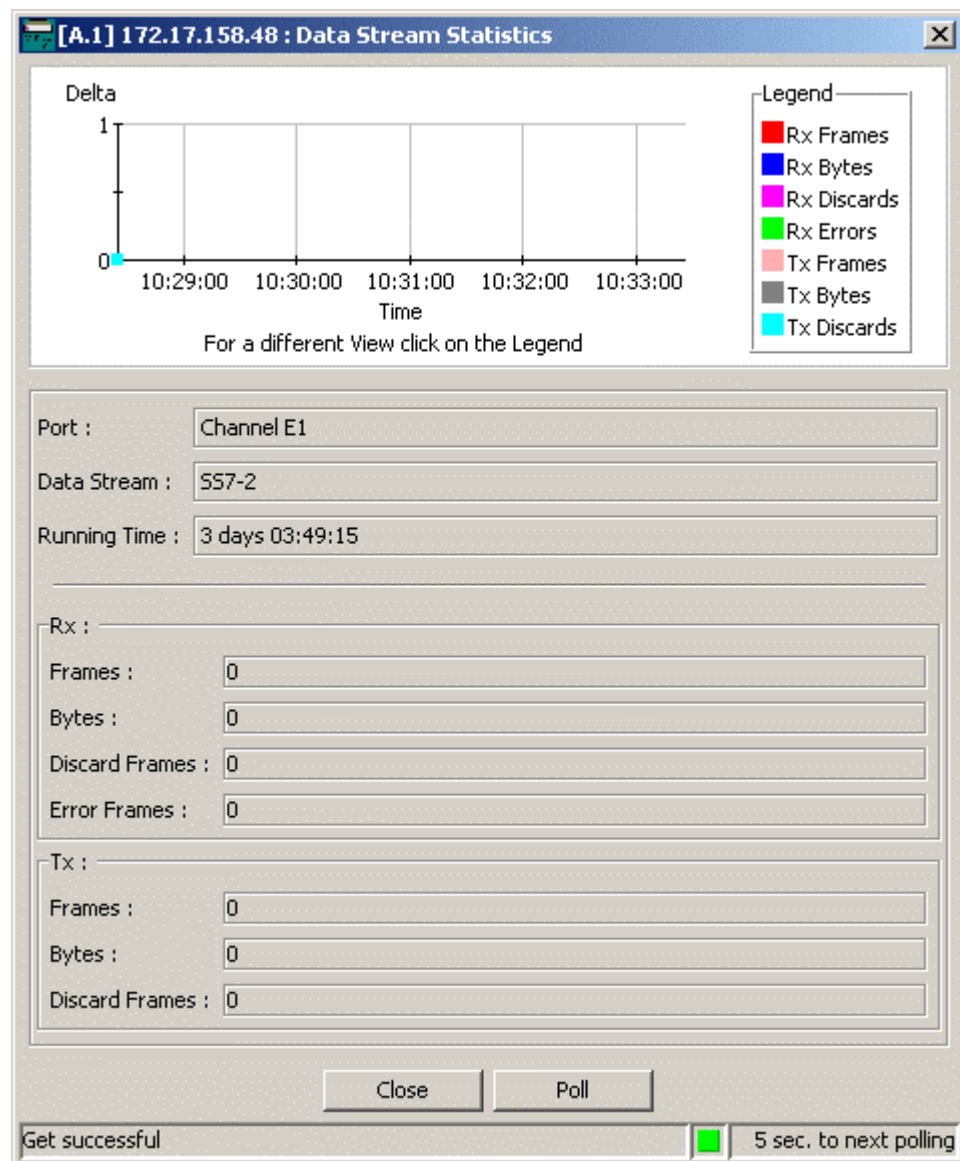


Figure 6-7. Data Stream Statistics Dialog Box

*Table 6-6. Data Stream Statistics Parameters*

Parameter	Possible Values/Remarks
Port	Channel E1, Channel T1
Data Stream	User selection from Data Stream dialog box
Running Time	The system up time, i.e., the time (in hundredths of a second) since the network management portion of the system was last re-initialized. Format: DD days HH:MM:SS
<b>Counters (Rx)</b>	
Frames	Number of frames received
Bytes	Number of bytes received
Discarded Frames	Number of discarded frames received
Error Frames	Number of error frames received
<b>Counters (Tx)</b>	
Frames	Number of frames sent
Bytes	Number of bytes sent
Discarded Frames	Number of discarded frames sent
[Poll]	Click <Poll> to update the information displayed in the dialog box
[Close]	Click <Close> to close the dialog box.

## 6.7 Viewing Receive Frame Types Statistics for a LAN Port

The **Rx Frame Types** command enables you to view Ethernet port receive statistics.

- To view receive statistics for an Ethernet port:
  1. In Agent mode only, select the Ethernet port.
  2. From the **Statistics** menu, select **LAN Statistics > Rx Frame Types**.



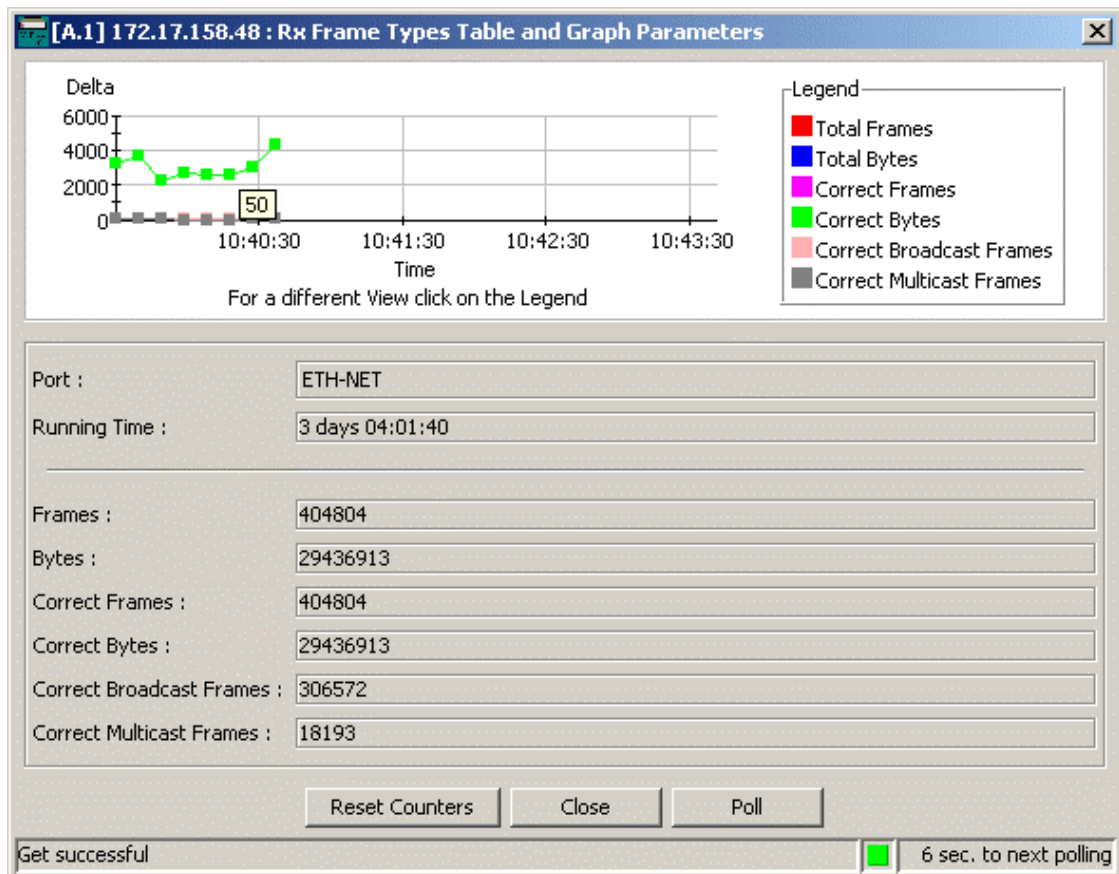


Figure 6-8. LAN Receive Frame Types Statistics Dialog Box

Table 6-7. LAN Receive Frame Types Statistics Parameters

Parameter	Possible Values / Remarks
Port	ETH-NET, ETH-USER
Running Time	The system up time, i.e., the time (in hundredths of a second) since the network management portion of the system was last re-initialized. Format: DD days HH:MM:SS
<b>Status Bar</b>	
Countdown Timer	Displays number of seconds to next polling action. Only in use when polling is enabled.
<b>Rx Frame Type Table&amp;Graph Parameters</b>	<b>Note:</b> The following parameters vary depending on the device's hardware version. The parameters listed here are for a device hardware version of 1.1 or greater.
Frames	Counter of received frames.
Bytes	Counter of received bytes.
Correct Frames	Counter of received <b>correct</b> frames.
Correct Bytes	Counter of received <b>correct</b> bytes.
Correct Broadcast Frames	Counter of received <b>correct broadcast</b> frames.

Table 6-7. LAN Receive Frame Types Statistics Parameters (Cont.)

Parameter	Possible Values / Remarks
Correct Multicast Frames	Counter of received <b>correct multicast</b> frames.
[Reset Counters]	Click < <b>Reset Counters</b> > to reset the counters of selected port to 0.
[Close]	Click < <b>Close</b> > to close the dialog box
[Poll]	Click < <b>Poll</b> > to update the information displayed in the dialog box

## 6.8 Viewing Transmit Frame Types Statistics for a LAN Port

The **Tx Frame Types** command enables you to view Ethernet port transmit statistics.

- To view transmit statistics for an Ethernet port:
  1. In Agent mode only, select the Ethernet port.
  2. From the **Statistics** menu, select **LAN Statistics > Tx Frame Types**.

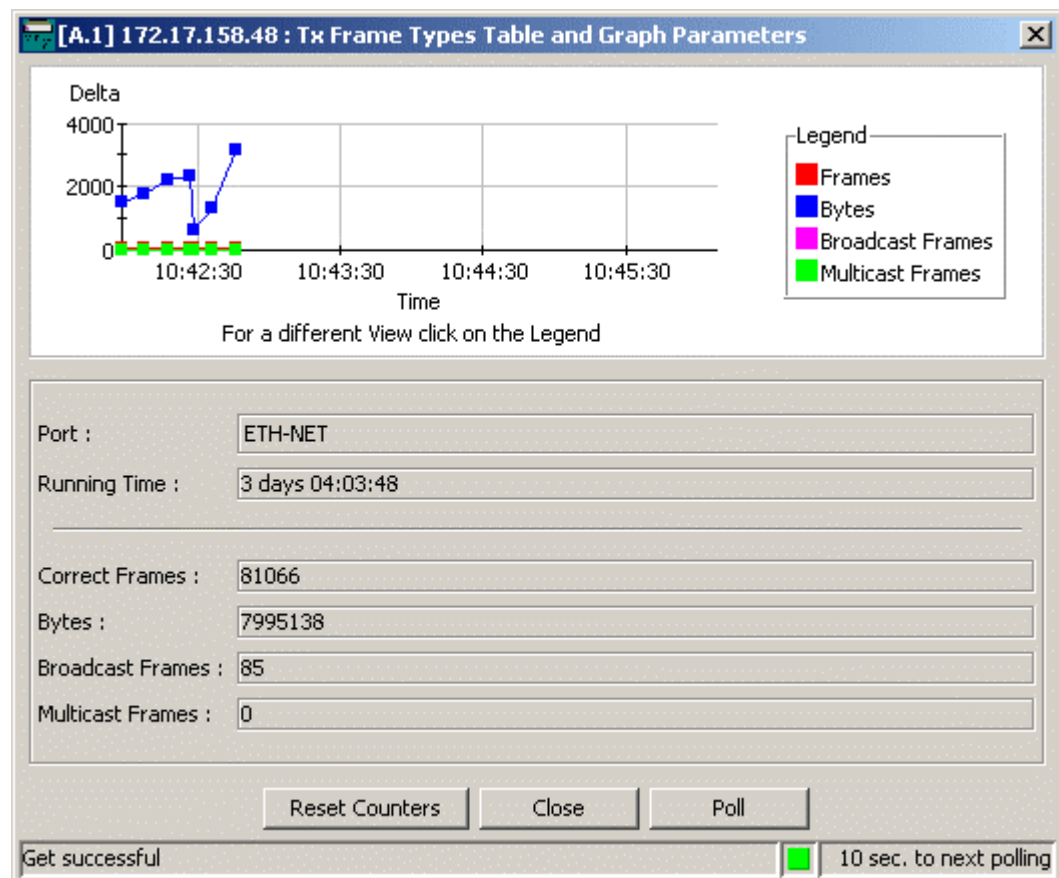


Figure 6-9. LAN Transmit Frame Types Statistics Dialog Box

Table 6-8. LAN Transmit Frame Types Statistics Parameters

Parameter	Possible Values / Remarks
Port	ETH-NET, ETH-USER
Running Time	The system up time, i.e., the time (in hundredths of a second) since the network management portion of the system was last re-initialized. Format: DD days HH:MM:SS
<b>Status Bar</b>	
Countdown Timer	Displays number of seconds to next polling action. Only in use when polling is enabled.
<b>Tx Frame Type Table&amp;Graph Parameters</b>	<i><b>Note:</b> The following parameters vary depending on the device's hardware version. The parameters listed here are for a device hardware version of 1.1 or greater.</i>
Correct Frames	Counter of <b>correct</b> frames transmitted
Bytes	Counter of bytes transmitted
Broadcast Frames	Counter of <b>broadcast</b> frames.
Multicast Frames	Counter of <b>multicast</b> frames.
[Reset Counters]	Click < <b>Reset Counters</b> > to reset the counters of selected port to 0.
[Close]	Click < <b>Close</b> > to close the dialog box
[Poll]	Click < <b>Poll</b> > to update the information displayed in the dialog box

## 6.9 Viewing Errors Statistics for a LAN Port

Use the **LAN Statistics | Errors** command to display error statistics for a LAN port.

➤ **To view receive errors statistics for a LAN Port:**

1. In Agent mode, select a LAN port.
2. From the **Statistics** menu, select **LAN Statistics > Errors**.

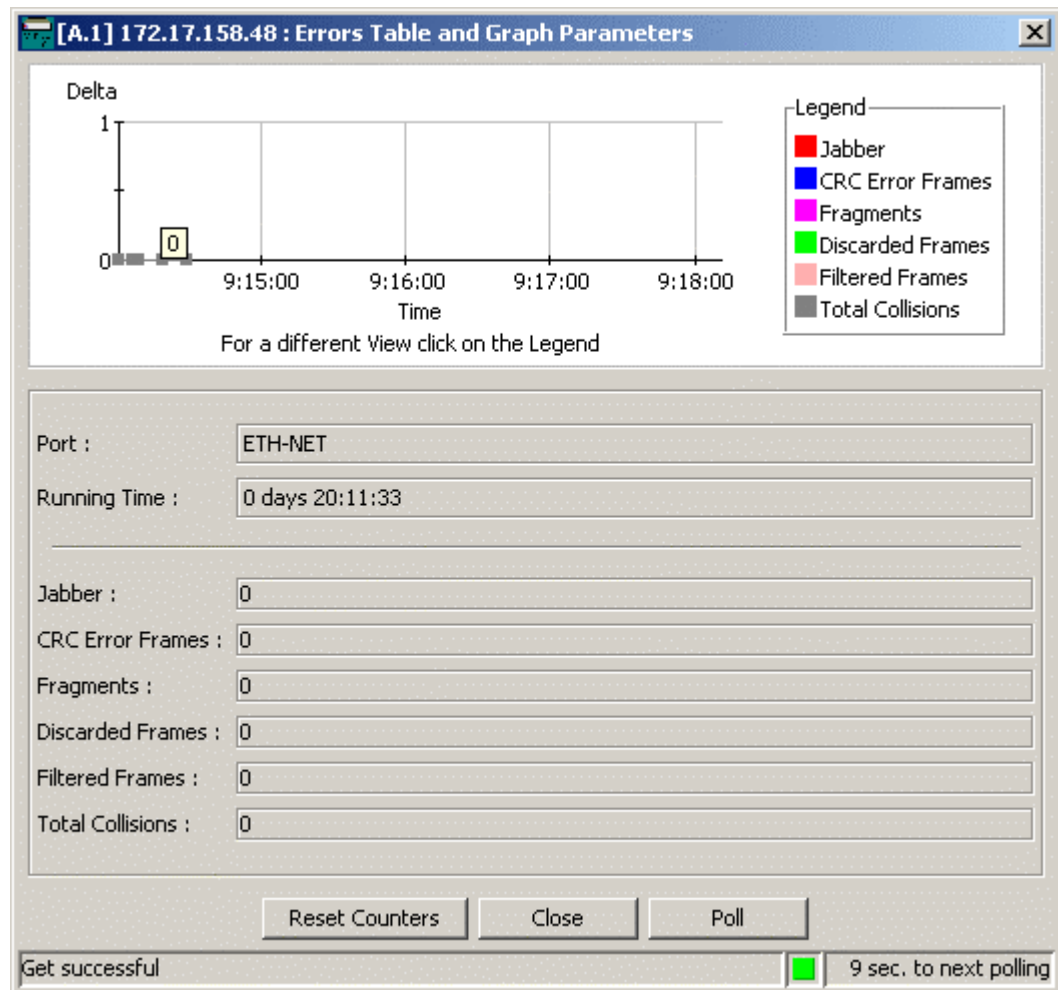


Figure 6-10. LAN Errors Statistics Dialog Box

Table 6-9. LAN Errors Statistics Parameters

Parameter	Possible Values / Remarks
Jabber	Total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error)
CRC Error Frames	Total number of packets received that had a length (excluding framing bits, but including FCS octets) of between 64 and 1518 octets, inclusive, but had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error)
Fragments	Total number of packets received that were less than 64 octets in length (excluding framing bits but including FCS octets) and had either a bad Frame Check Sequence (FCS) with an integral number of octets (FCS Error) or a bad FCS with a non-integral number of octets (Alignment Error)
Discarded Frames	Total number of inbound packets which were chosen to be discarded even though no errors had been detected
Filtered Frames	Total number of valid frames received which were discarded by the Forwarding Process

*Table 6-9. LAN Errors Statistics Parameters (Cont.)*

Parameter	Possible Values / Remarks
Total Collisions	Total number of collisions on this Ethernet segment
[Reset Counters]	Click < <b>Reset Counters</b> > to reset the counters of selected port to 0.
[Close]	Click < <b>Close</b> > to close the dialog box
[Poll]	Click < <b>Poll</b> > to update the information displayed in the dialog box

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## 6.10 Viewing Frame Sizes Statistics for a LAN Port

Use the **Frame Sizes** command to display statistics about frame sizes and frame size errors on a LAN port.

- **To view frame sizes statistics for a LAN Port:**
1. In Agent mode, select a LAN port.
  2. From the **Statistics** menu, select **LAN Statistics > Frame Sizes**.

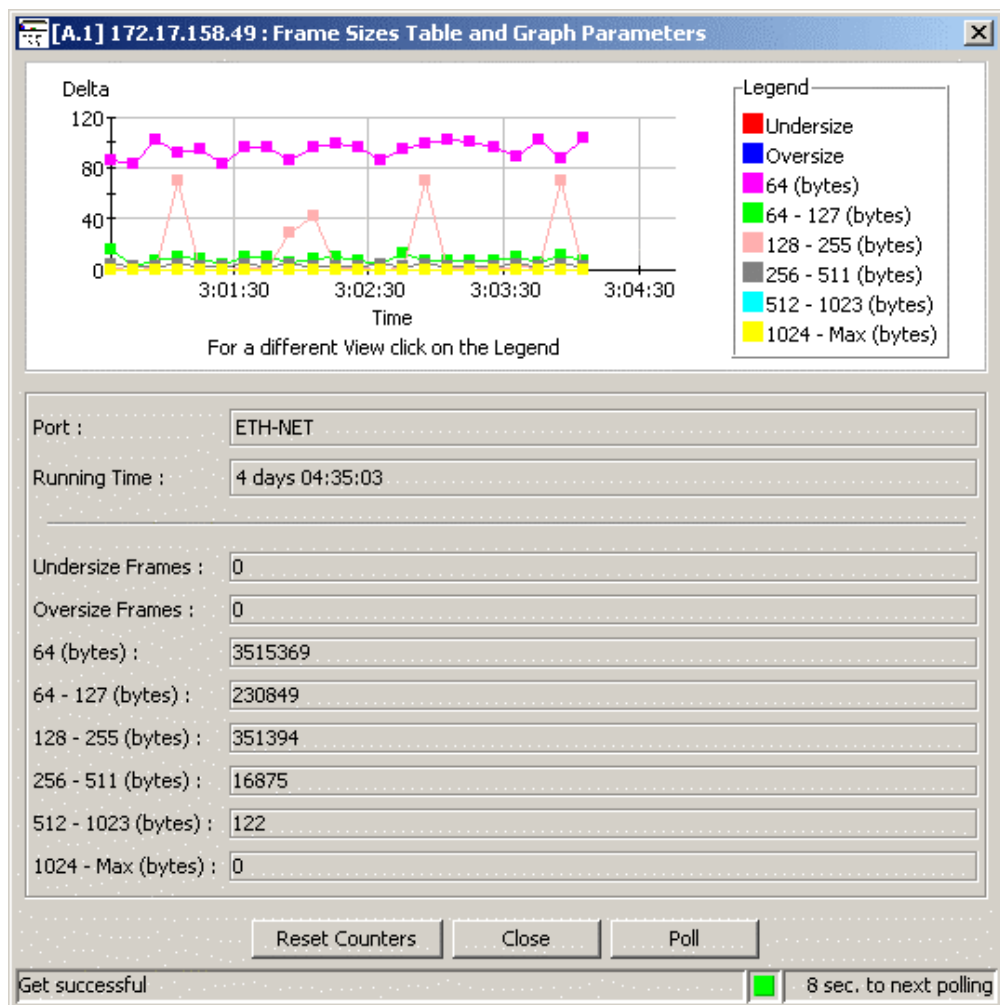


Figure 6-11. LAN Frame Sizes Statistics

Table 6-10. LAN Frame Sizes Statistics

Parameter	Possible Values / Remarks
Undersize Frames	Total number of undersized frames
Oversize Frames	Total number of oversized frames
64 (bytes)	Total number of 64 byte frames
65 - 127 (bytes)	Total number of frames from 65 to 127 bytes
128 - 255 (bytes)	Total number of frames from 128 to 255 bytes
256 - 511 (bytes)	Total number of frames from 256 to 511 bytes
512 - 1023 (bytes)	Total number of frames from 512 to 1023 bytes
1024 - Max (bytes)	Total number of frames from 1024 to 1518 bytes
[Close]	Click <Close> to close the dialog box
[Poll]	Click <Poll> to update the information displayed in the dialog box
[Reset Counters]	Click <Reset Counters> to reset the counters

## 6.11 Viewing Statistics for an E1/T1 or Serial Port Link

Use the **Link Statistics** command to view detailed statistics for a link.

► To view statistics for a link:

1. In Agent mode, select the serial, Link E1, or Link T1 port.
2. From the **Statistics** menu, select **Link Statistics**.

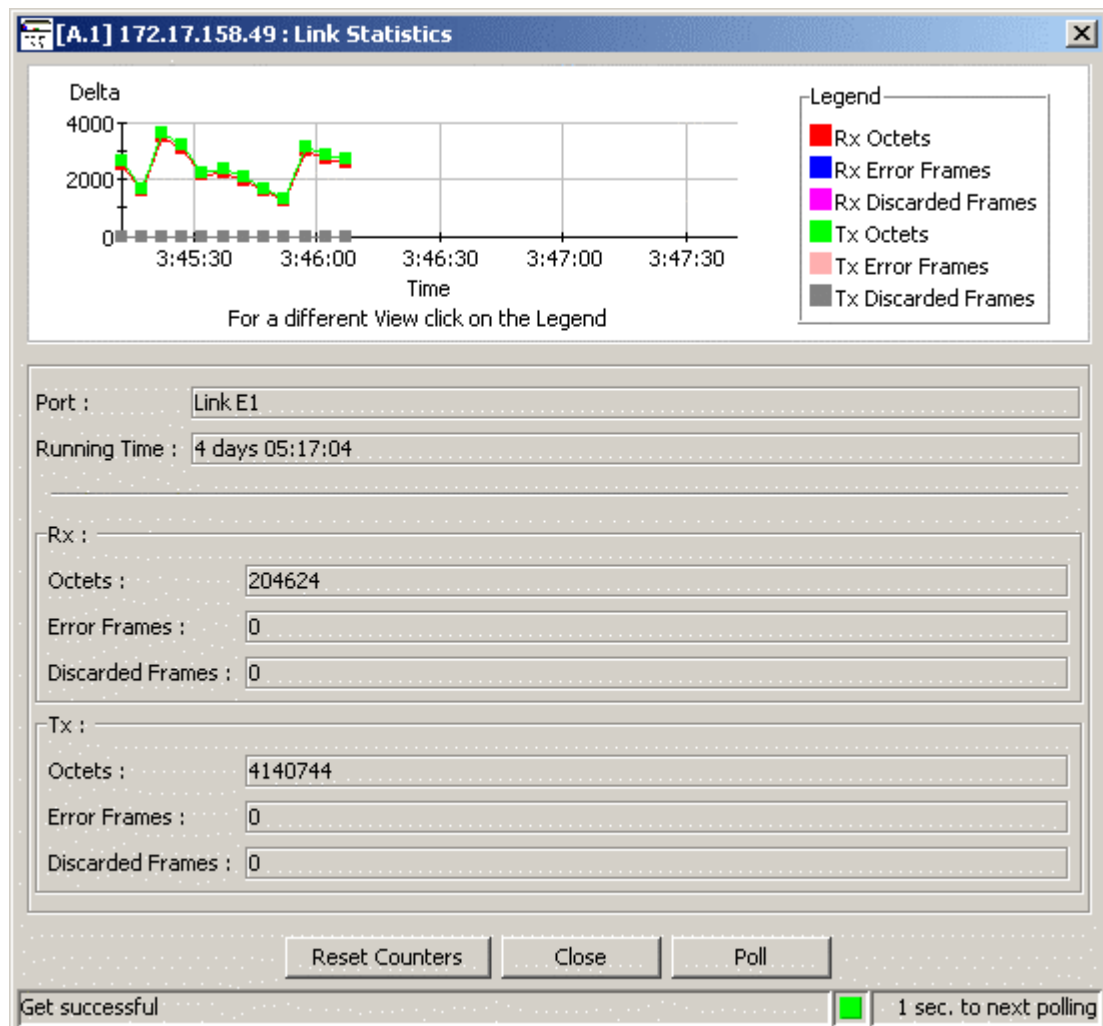


Figure 6-12. Link Statistics

*Table 6-11. Link Statistics*

Parameter	Possible Values / Remarks
Port	<b>Serial Link, Link E1, Link T1</b>
Running Time	The system up time, i.e., the time (in hundredths of a second) since the network management portion of the system was last re-initialized. Format: DD days HH:MM:SS
<b>Rx</b>	
Octets	Number of octets received
Error Frames	The number of frames received that included errors
Discarded Frames	The amount of discarded frames received
<b>Tx</b>	
Octets	Number of octets transmitted
Error Frames	The number of frames sent that included errors
Discarded Frames	The amount of discarded frames sent
[Reset Counters]	Click < <b>Reset Counters</b> > to reset the counters of selected port to 0.
[Close]	Click < <b>Close</b> > to close the dialog box
[Poll]	Click < <b>Poll</b> > to update the information displayed in the dialog box



# Chapter 7

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## Fault Management

This chapter describes Vmux-110 fault management and explains how to perform the following tasks:

- Viewing All Active Alarms
- Viewing System Level Active Alarms
- Viewing IP Bundles Active Alarms
- Clearing the System Level Active Alarm Buffer
- Clearing All Levels of the Active Alarm Buffer
- Configuring Alarm Attributes
- Configuring Alarm Reports
- Sanity Checking Errors
- Displaying the All Buffer Alarms List
- Displaying the New Buffer Alarms List
- Displaying the Port Active Alarm Lists
- Clearing the Port Active Alarm Buffer
- Running Loopback Tests

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**Note**

*Access the Agent mode by selecting the bottom image of the device.  
Access the Edit mode by selecting the top image of the device.*

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### 7.1 Monitoring Object Status

The **Fault** menu provides access to the system alarm options. You can view alarm severity as well as mask alarms. Different Fault menu options may appear depending on whether the user is working in Agent or Edit mode.


#### Viewing All Active Alarms

The **Display > All** command enables you to view active alarms at all levels; system, bundle, or port.

➤ **To view all active alarms:**

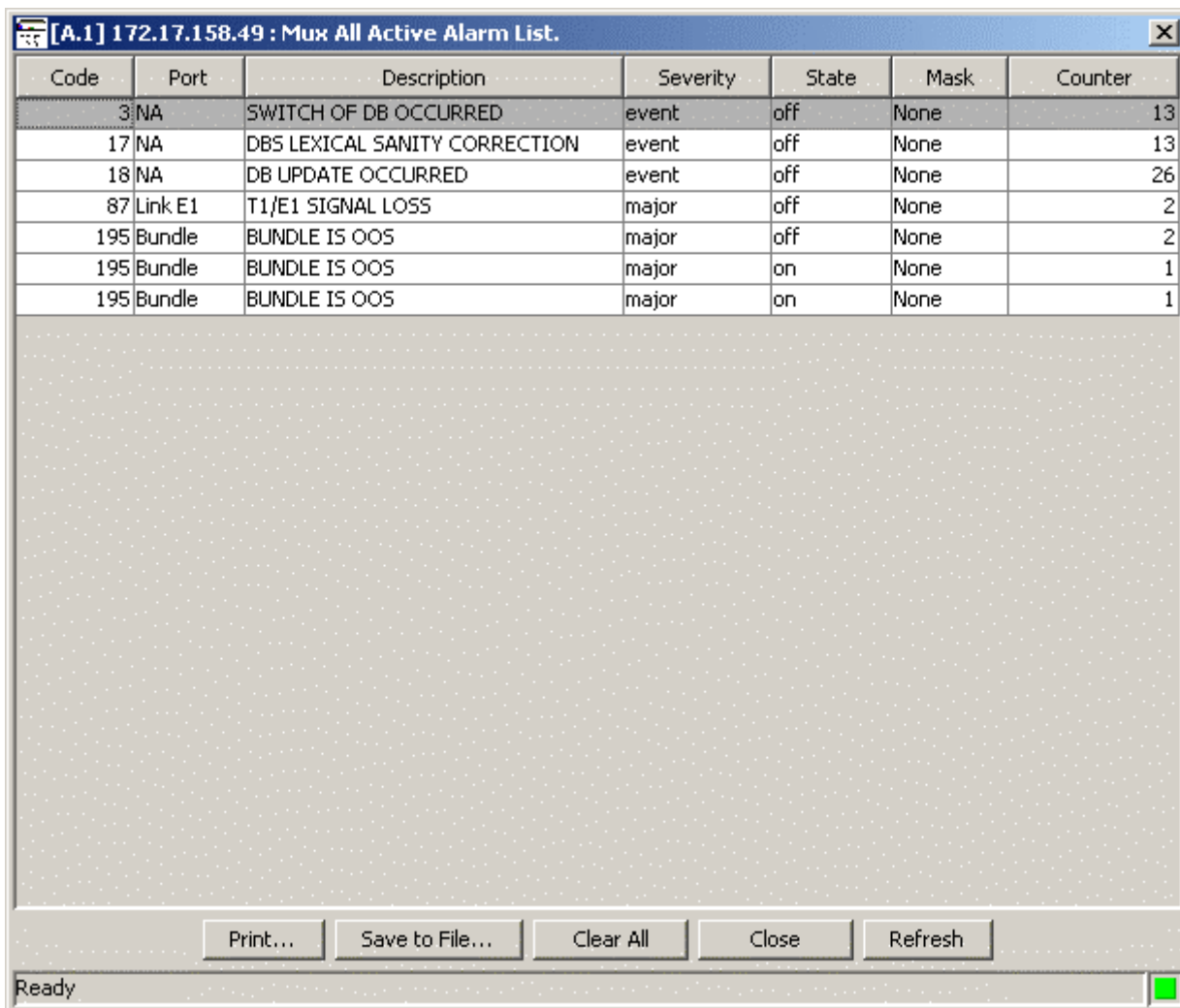
1. In Agent mode only, select the device.

2. From the **Fault** menu, select **Alarms > Display > All**.  
or

From the toolbar, click 

As the list of alarms is prepared, a Progress Bar window illustrates the upload progress. If no alarms exist, the list will be empty.

3. Sort the list of alarms by any one of the column values by clicking on the column header. Each click toggles between ascending and descending order.



Code	Port	Description	Severity	State	Mask	Counter
3	NA	SWITCH OF DB OCCURRED	event	off	None	13
17	NA	DBS LEXICAL SANITY CORRECTION	event	off	None	13
18	NA	DB UPDATE OCCURRED	event	off	None	26
87	Link E1	T1/E1 SIGNAL LOSS	major	off	None	2
195	Bundle	BUNDLE IS OOS	major	off	None	2
195	Bundle	BUNDLE IS OOS	major	on	None	1
195	Bundle	BUNDLE IS OOS	major	on	None	1

Print... Save to File... Clear All Close Refresh

Ready

Figure 7-1. Mux All Active Alarm List Dialog Box

Table 7-1. Mux All Active Alarm List Parameters

Parameter	Possible Values / Remarks
Code	Alarm code
Port	Selected port, if applicable
Description	Description of the alarm
Severity	<b>No Report, Event, Minor, Major, Warning, Critical</b>
State	<b>On, Off</b>
Mask	<b>Mask, None</b>
Counter	Number of times this alarm has been triggered since the last time the system was restarted or the alarm was cleared.
[Print]	Click < <b>Print</b> > to print the Mux All Active Alarm List. This button is disabled if the table is empty.
[Save to File]	Click < <b>Save to File</b> > to save the Mux All Active Alarm List. The Save File dialog box appears. In the File Name field, enter the name of the file. In the File of type field, select <b>Acrobat (*.pdf)</b> or <b>HTML (*.htm)</b> . Click <b>Save</b> . This button is disabled if the table is empty.
[Clear All]	Click < <b>Clear All</b> > to clear all active alarms of all levels and close the Mux All Active Alarm list. This button is disabled if the table is empty.
[Close]	Click < <b>Close</b> > to close the Mux All Active Alarm List dialog box
[Refresh]	Click < <b>Refresh</b> > to update the Mux All Active Alarm List

## Viewing System Level Active Alarms

The **Display > System Level** command enables you to view system level alarms.

➤ **To view system level Active Alarms:**

1. In Agent mode only, select the device.
2. From the Fault menu, select **Alarms > Display > System Level**.

As the list of alarms is prepared, a Progress Bar window illustrates the upload progress. If no alarms exist, the list will be empty.

3. Sort the list of alarms by any one of the column values by clicking on the column header. Each click toggles between ascending and descending order.

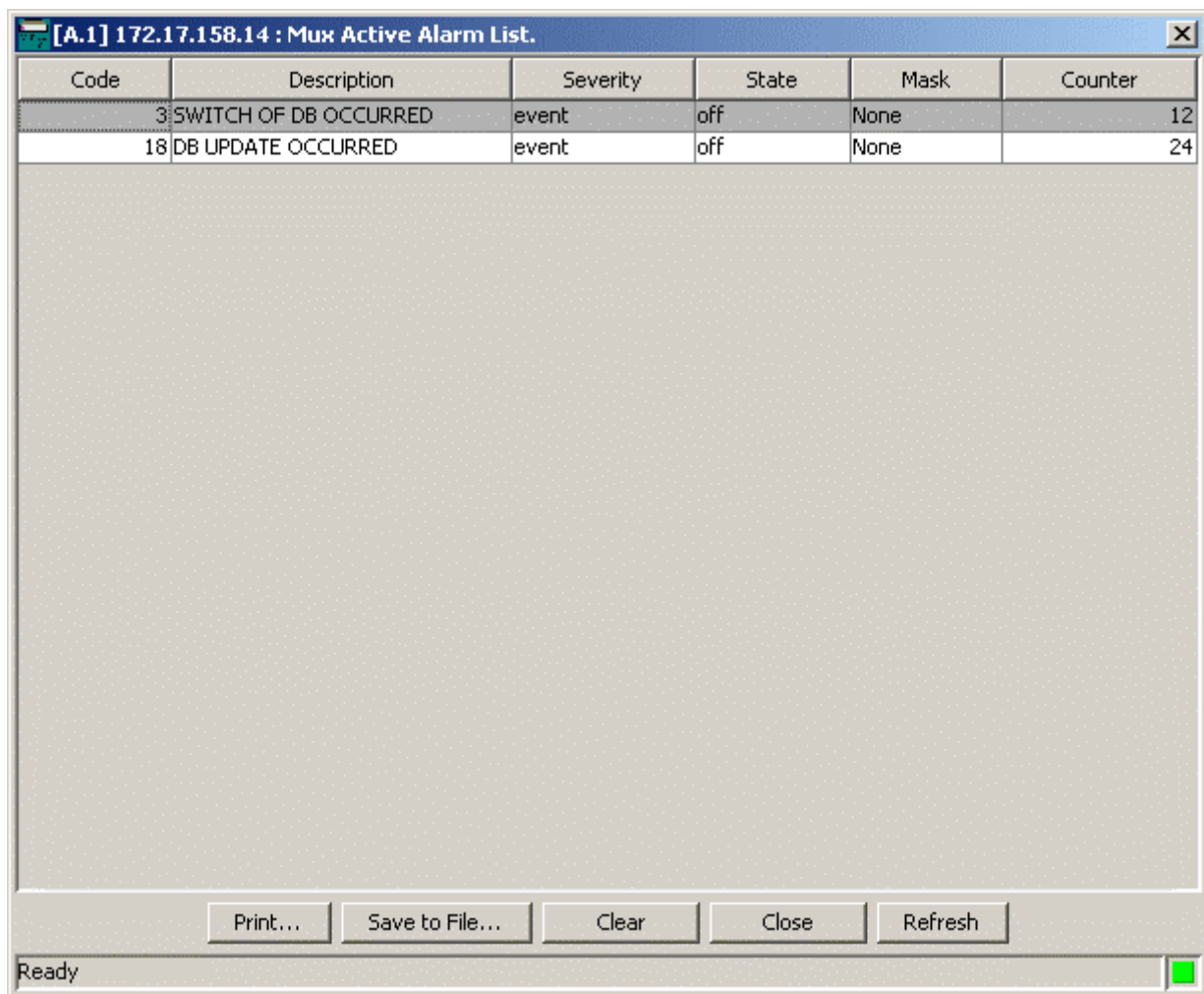


Figure 7-2. Mux Active Alarm List Dialog Box

Table 7-2. Mux Active Alarm List Parameters

Parameter	Possible Values / Remarks
Code	Alarm code
Description	Description of the alarm
Severity	<b>No Report, Event, Minor, Major, Warning, Critical</b>
State	<b>On, Off</b>
Mask	<b>Mask, None</b>
Counter	Number of times this alarm has been triggered since the last time the system was restarted or the alarm was cleared.
[Print]	Click < <b>Print</b> > to print the Mux Active Alarm List This button is disabled if the table is empty.
[Save to File]	Click < <b>Save to File</b> > to save the Mux Active Alarm List. The Save File dialog box appears. In the File Name field, enter the name of the file. In the File of type field, select <b>Acrobat (*.pdf)</b> or <b>HTML (*.htm)</b> . Click <b>Save</b> . This button is disabled if the table is empty.
[Clear]	Click < <b>Clear</b> > to clear the Mux Active Alarm list. This button is disabled if the table is empty.
[Close]	Click < <b>Close</b> > to close the Mux Active Alarm List dialog box.
[Refresh]	Click < <b>Refresh</b> > to update the Mux Active Alarm List.

## Viewing IP Bundles Active Alarms

The **Display > IP Bundles...** command enables you to view IP Bundle alarms.

► **To view all IP Bundles Active Alarms:**

1. In Agent mode, select the device.
2. From the **Fault** menu, select **Alarms > Display > IP Bundles...**

The **IP Bundle Active Alarms** dialog box appears  
(see [IP Bundle Active Alarms](#), page 7-6).

3. To view a list of all alarms for all bundles, click < **All Bundles** >.

The **All Bundles Active Alarm List** dialog box appears  
(see [All Bundles Active Alarm List](#), page 7-7).

4. To view a list of alarms for a single bundle, select a table entry and click < **One Bundle** >.

The **Bundle Active Alarm List** dialog box appears  
(see [Bundle Active Alarm List](#), page 7-9).

As the list of alarms is prepared, a Progress Bar window illustrates the upload progress. If no alarms exist, the list will be empty.

## IP Bundle Active Alarms

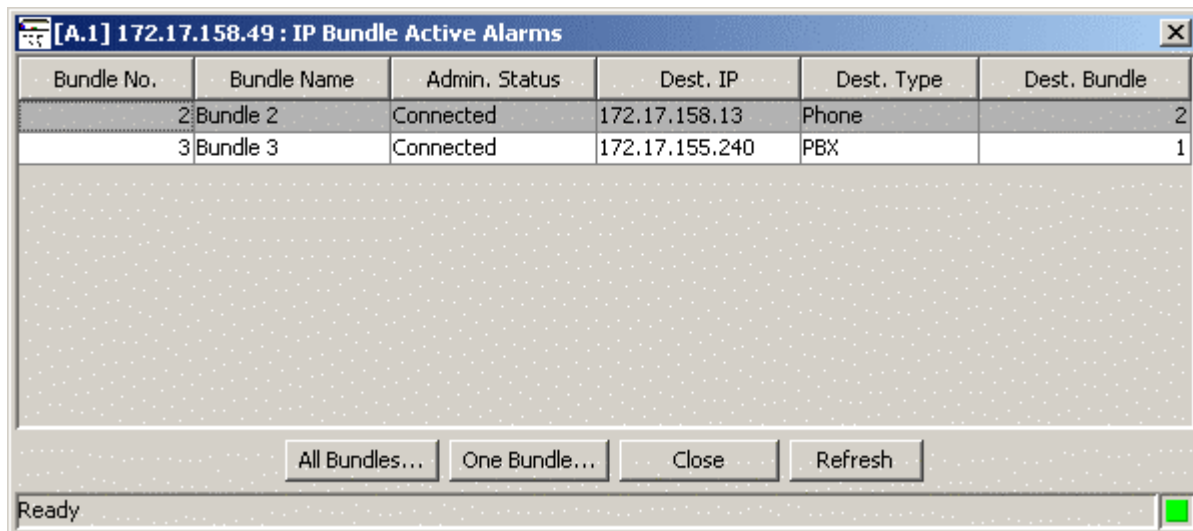


Figure 7-3. IP Bundle Active Alarms Dialog Box

Table 7-3. IP Bundle Active Alarms Parameters

Parameter	Possible Values/Remarks
Bundle No.	<b>1...12</b>
Bundle Name	Unique bundle name (string, maximum 10 characters)
Admin Status	Indicates state of the link <b>Connected, Disconnected</b> (frames are not sent from this channel)
Dest. IP	IP address of the destination mux <b>0.0.0.0–255.255.255.255</b>
Dest. Type (only on FXS device)	<b>PBX, Phone</b>
Dest. Bundle	Bundle number in the destination mux <b>1..30</b>
[All Bundles]	Click < <b>All Bundles</b> > to view a list of alarms for all Bundle Connection table entries. This button is disabled if the table is empty.
[One Bundle]	Click < <b>One Bundle</b> > to view a list of alarms for the selected Bundle Connection table entry. This button is enabled only when a table entry is selected.
[Close]	Click < <b>Close</b> > to close the dialog box.
[Refresh]	Click < <b>Refresh</b> > to refresh the data displayed in the dialog box.

## All Bundles Active Alarm List

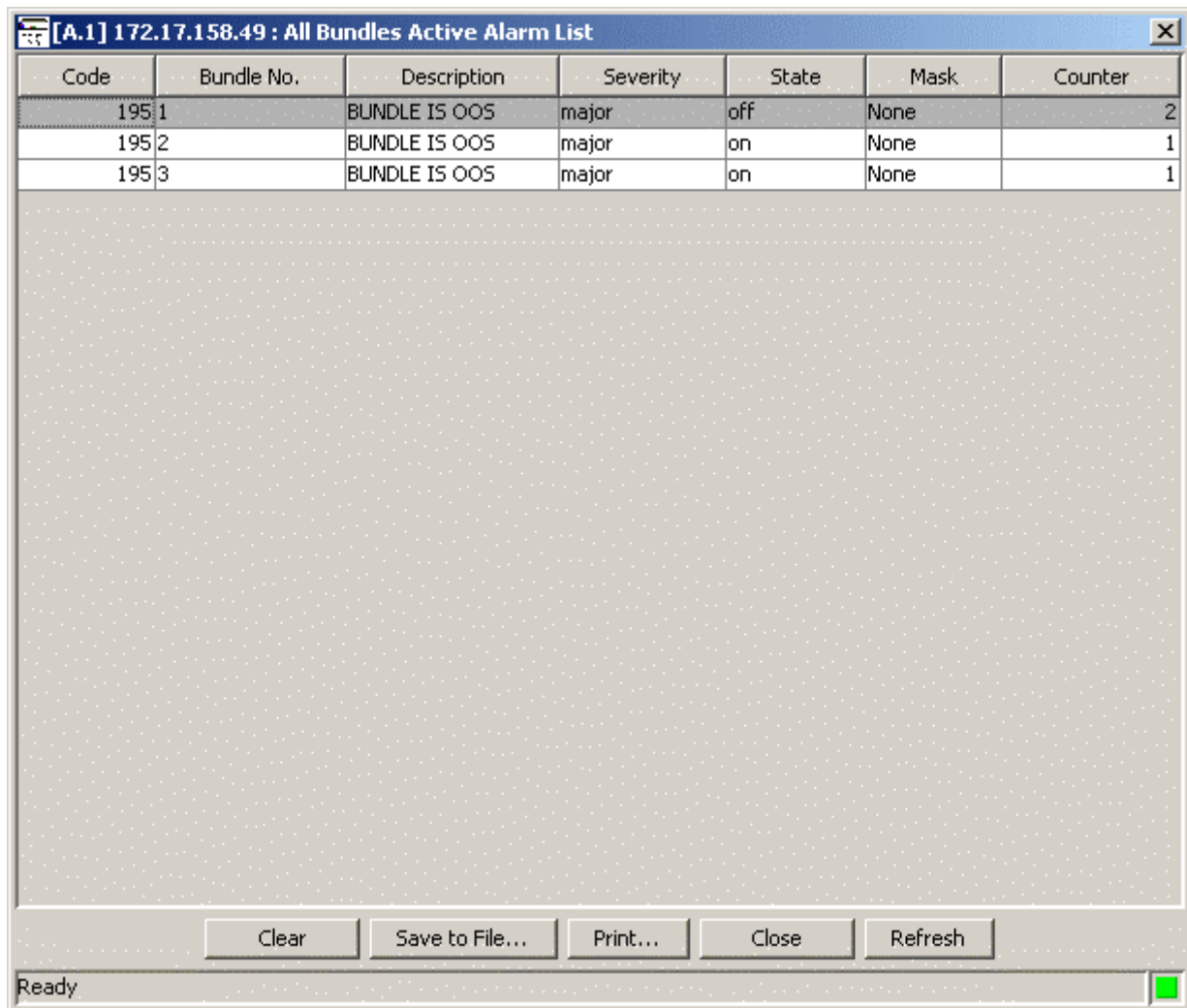


Figure 7-4. All Bundles Active Alarm List Dialog Box

Table 7-4. All Bundles Active Alarm List Parameters

Parameter	Possible Values / Remarks
Code	Alarm code
Bundle No.	Index number of the bundle
Description	Description of the alarm
Severity	<b>No Report, Event, Minor, Major, Warning, Critical</b>
State	<b>On, Off</b>
Mask	<b>Mask, None</b>
Counter	Number of times this alarm has been triggered since the last time the system was restarted or the alarm was cleared.
[Clear]	Click < <b>Clear</b> > to clear a selected entry from the All IP Bundles Active Alarm list. This button is disabled if the table is empty.
[Save to File...]	Click < <b>Save to File...</b> > to save the All IP Bundles Active Alarm List. The Save dialog box appears. In the File Name field, enter the name of the file. In the File of type field, select <b>Acrobat (*.pdf)</b> or <b>HTML (*.htm)</b> . Click <b>Save</b> . This button is disabled if the table is empty.
[Print...]	Click < <b>Print...</b> > to print the All IP Bundles Active Alarm List. This button is disabled if the table is empty.
[Close]	Click < <b>Close</b> > to close the All IP Bundles Active Alarm List dialog box.
[Refresh]	Click < <b>Refresh</b> > to update the All IP Bundles Active Alarm List.



## Bundle Active Alarm List

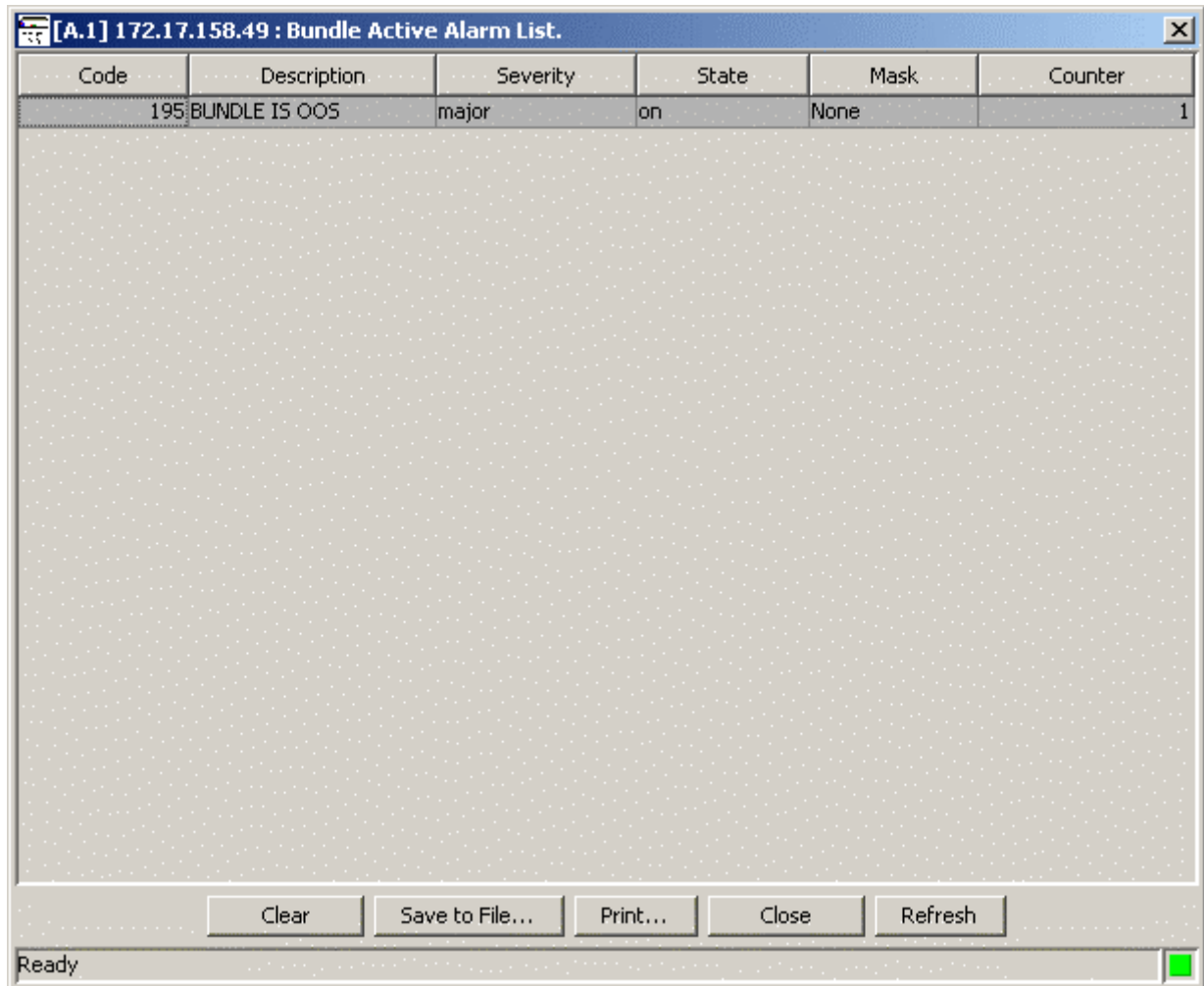


Figure 7-5. Bundle Active Alarm List Dialog Box

## Clearing the System Level Active Alarm Buffer

The **Clear** command enables you to clear the system level active alarm buffer.

- To clear system level active alarms:
  1. In Agent mode only, select the device.
  2. From the **Fault** menu, select **Alarms > Clear**.

### Note

*Alarms that are masked are not cleared.*

## Clearing All Levels of the Active Alarm Buffer

The **Clear All** command enables you to clear the alarm buffer at all levels.

- **To clear the Active Alarm buffer at all levels:**
  1. In Agent mode only, select the device.
  2. From the **Fault** menu, select **Alarms > Clear All**.

---

**Note**

- *Alarms that are masked are not cleared.*
  - *If an alarm continues to be triggered for any reason, that alarm will not be cleared because it will immediately reappear as soon as it is retriggered.*
- 

## Configuring Alarm Attributes

The **Configuration > Attributes** command enables you to define alarms for each level and set masking criteria for the alarms.

- **To configure Alarm Attributes:**
  1. In Agent mode only, select the device.
  2. From the Fault menu, select **Alarms > Configuration > Attributes**.
  3. Click the radio button next to the category of alarms you wish to display:
    - All alarms
    - System level alarms only
    - Port level alarms only (may be limited to a specific port)
    - IP Bundle alarms only (may be limited to a specific bundle).

The list of alarms displayed by default includes all active alarms for the selected group plus any inactive alarms in that group with at least one attribute set to Yes.
  4. Sort the list of alarms by any one of the column values by clicking on the column header. Each click toggles between ascending and descending order.

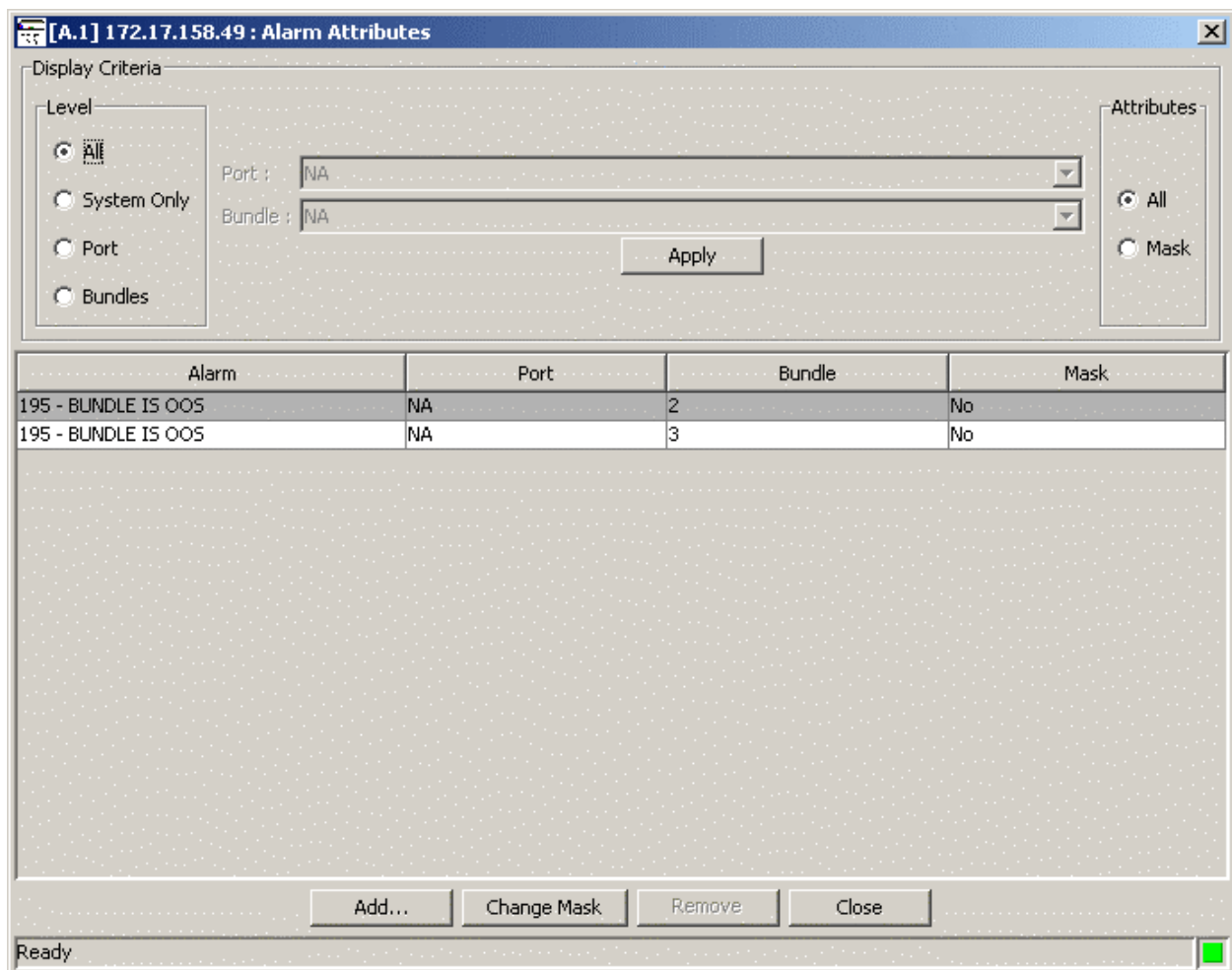


Figure 7-6. Alarm Attributes Dialog Box

Table 7-5. Alarm Attributes Parameters

Parameter	Possible Values / Remarks
<b>Level</b>	
All	System, port, and IP Bundle level alarms
System Only	System level alarms only
Port	Port level alarms only
Bundles	IP Bundle level alarms only
Port	<b>All, Link E1, Link T1, Serial Link</b> Specific Port to display in the Alarm Attributes List Enabled only when <b>Level</b> is set to <b>Port</b> .
Bundle	<b>All, 1...31 (E1), 1...24 (T1)</b> Specific Bundle to display in the Alarm Attributes List Enabled only when <b>Level</b> is set to <b>Bundle</b> .
<b>Attributes</b>	
All	All alarms are displayed according to the level selection
Mask	Only entries that are masked (Yes) are displayed according to the level selection
Alarm	Alarm code and description of the alarm
Port	Port to which the alarm applies (if relevant)
Bundle	Bundle to which the alarm applies
Mask	Masking status of the alarm A masked alarm is not logged in the alarm buffer, no traps are set for it, no LED is lit for it, and it does not affect the Mux status in any way. A masked alarm does appear in the Active Alarm list, with a sign indicating that the alarm is masked. A masked alarm cannot be cleared.
[Add]	Click <Add> to add a new alarm entry to the Alarm Attributes List
[Change Mask]	Click <Change Mask> to set the mask of a selected alarm entry to Yes.
[Remove]	Click <Remove> to effectively remove a selected alarm entry from the Alarm Attributes List by setting the mask to No. <b>Note:</b> If the selected alarm is still active, it will still be displayed in the Alarm Attributes List.
[Close]	Click <Close> to close the Alarm Attributes dialog box

➤ **To add an alarm entry to the Alarm Attributes List:**

1. In Agent mode only, select the device.
2. From the **Fault** menu, select **Alarms > Configuration > Attributes**.

The **Alarm Attributes** dialog box appears ( *Figure 7-6*).

3. Click <Add>.

The **Add Alarm Attributes** dialog box ( *Figure 7-7* ) appears. The fields in the **Add Alarm Attributes** dialog box are described in *Table 7-5*.

4. Enter the attributes of the new alarm entry.
5. Click <Set>.

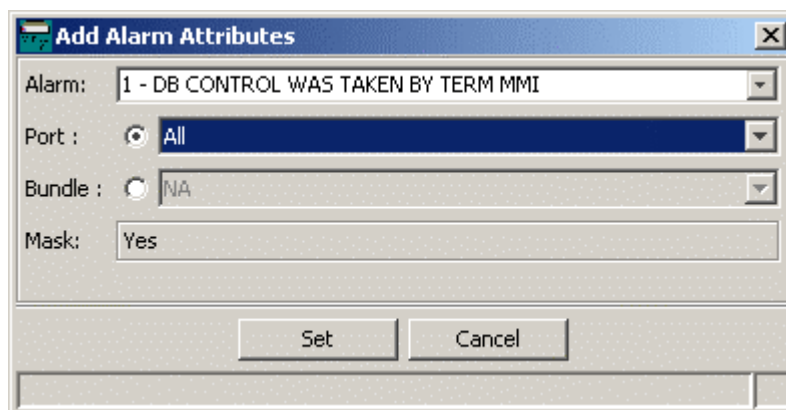


Figure 7-7. Add Alarm Attributes Dialog Box

## Configuring Alarm Reports

The **Configuration > Reports** command enables you to set the severity of each type of alarm and thereby define when alarms are triggered or cleared. This determines what information will be saved in the Report files.

► **To configure Alarm Reports:**

1. In Agent mode only, select the device.
2. From the **Fault** menu, select **Alarms > Configuration > Report**.

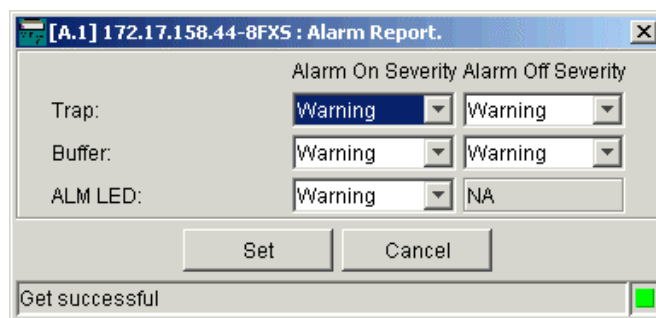


Figure 7-8. Alarm Report Dialog Box

Table 7-6. Alarm Report Parameters

Parameter	Possible Values / Remarks
<b>Alarm On Severity</b>	
Trap	<b>No Report, Event, Minor, Major</b> Defines whether traps for all alarms should be reported or only from a specific severity level. Trap severity should be set to a level equal to or higher than Buffer severity.
Buffer	<b>No Report, Event, Minor, Major</b> Defines whether information about all alarms should be reported or only from a specific severity level.
ALM LED	<b>No Report, Event, Minor, Major</b> Device Alarm LED warning light is <b>On</b> if the severity level of any current active alarm is equal to or higher than the severity level selected here.
<b>Alarm Off Severity</b>	
Trap	<b>No Report, Event, Minor, Major</b> Defines whether traps for all alarms should be reported or only from a specific severity level. Trap severity should be set to a level equal to or higher than Buffer severity.
Buffer	<b>No Report, Event, Minor, Major</b> Defines whether information about all alarms should be reported or only from a specific severity level.
ALM LED	<b>NA</b>
[Set]	Click < <b>Set</b> > to save changes to Alarm Report parameters
[Cancel]	Click < <b>Cancel</b> > to close the Alarm Report dialog box without saving changes


**Note**

- *If No Report is selected, there will be no report data no matter what the alarm severity actually is.*
- *To prevent the Alarm (ALM) LED from lighting during an event, set the ALM LED Alarm On Severity to Minor or to Major. This configuration also causes a lighted ALM LED to extinguish after the problem is fixed.*

## Viewing Sanity Check Errors

Vmux-110 records Sanity Check Errors, which flag inconsistencies in the device database. You can use the **Sanity Check Errors** command to view these critical errors so that you can correct them.

➤ **To view sanity check errors:**

1. In Edit mode only, select the device.
2. From the **Fault** menu, select **Sanity Check Errors**.  
or  
From the toolbar, click .
3. If there are errors to display, the **Sanity Check Errors** dialog box appears.  
  
As the list of alarms is prepared, a Progress Bar window illustrates the upload progress.

4. If there are no errors to display, a message box appears with the appropriate message (**No Sanity Errors** or **No Valid Errors**).

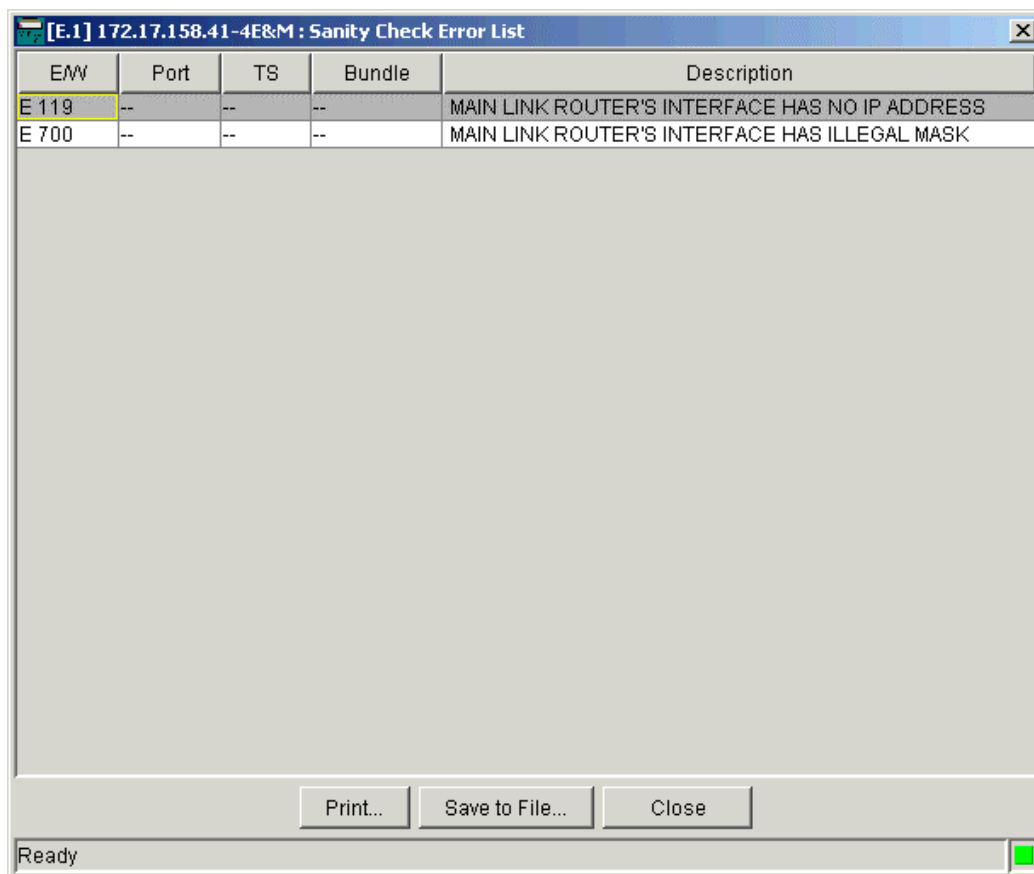


Figure 7-9. Sanity Check Errors Dialog Box

Table 7-7. Sanity Checks Errors Parameters

Parameter	Possible Values / Remarks
E/W	E (Error) number, W (Warning) number
Port	Port where the error occurred
TS	Timeslot where the error occurred
Bundle	IP Bundle where the error occurred
Description	Description of the error
[Print]	Click <Print> to print the Sanity Check Errors dialog box.
[Save to File]	Click <Save to File> to save the Sanity Check Errors List. The Save dialog box appears. In the File Name field, enter the name of the file. In the File of type field, select <b>Acrobat (*.pdf)</b> or <b>HTML (*.htm)</b> . Click <b>Save</b> .
[Close]	Click <Close> to close the Sanity Check Errors dialog box.

## Displaying the All Buffer Alarms List

The **History Log > All** command enables you to display all contents of the alarm buffer that contains all recorded alarms for the device.

➤ To display the alarm buffer for all alarms:

1. In Agent mode, select the device.
2. From the **Fault** menu, select **History Log > All**.
3. Sort the list of alarms by any one of the column values by clicking on the column header. Each click toggles between ascending and descending order.

Code	Port	Description	Status	Date	Time
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:28:33
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:29:43
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:31:13
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:32:23
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:33:53
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:35:03
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:37:33
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:37:43
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:39:13
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:39:51
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:41:21
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:42:31
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:44:01
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:45:11
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:46:41
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:47:51
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:49:21
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:49:52
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:51:22

Figure 7-10. All Buffer Alarms Dialog Box

Table 7-8. All Buffer Alarms Parameters

Parameter	Possible Values / Remarks
Code	Alarm code
Port	Port reporting the alarm
Description	Description of the alarm
Status	Off, Event, Minor, Major, Warning, Critical
Date	Date in the format DD-MM-YYYY
Time	Time in the format: HH:MM:SS
[Print]	Click <Print> to print the All Buffer Alarms list. (disabled if the list if empty).
[Save to File]	Click <Save to File> to save the All Buffer Alarms list to a file. The Save dialog box appears. In the File Name field, enter the name of the file. In the File of type field, select <b>Acrobat (*.pdf)</b> or <b>HTML (*.htm)</b> . Click <b>Save</b> (disabled if the list if empty).
[Close]	Click <Close> to close the All Buffer Alarms list
[Refresh]	Click <Refresh> to update the All Buffer Alarms list

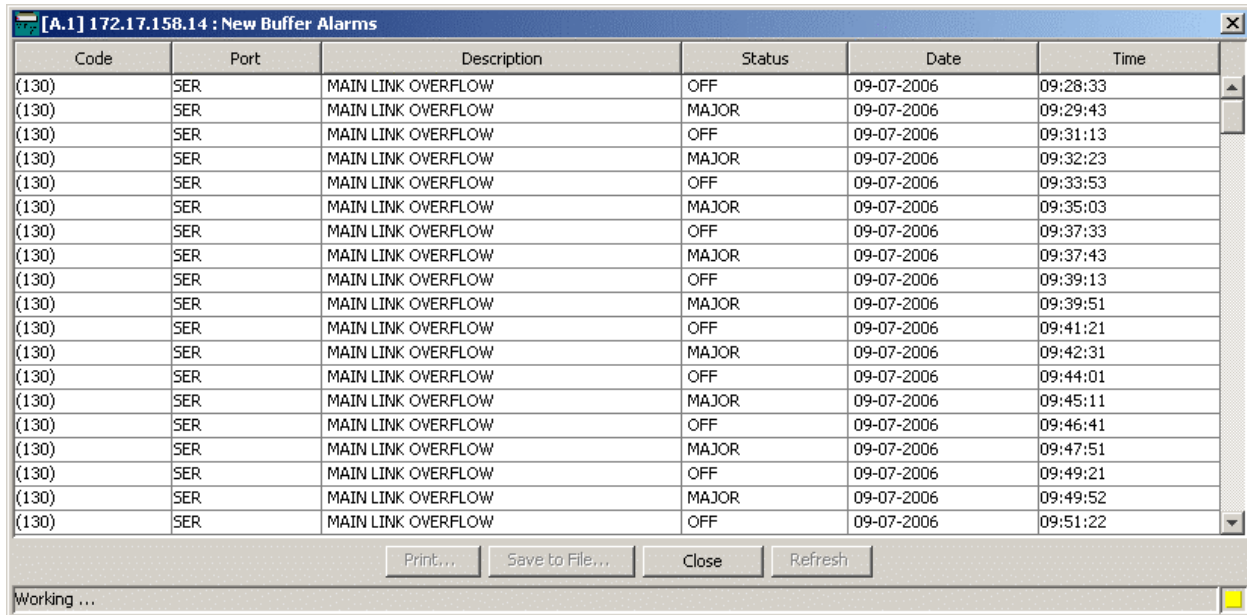


## Displaying the New Buffer Alarms List

The **History Log > New** command enables you to display the alarm buffer that contains the alarms recorded since the last time you ran this command.

➤ To display the alarm buffer for new alarms:

1. In Agent mode, select the device.
2. From the **Fault** menu, select **History Log > New**.
3. Sort the list of alarms by any one of the column values by clicking on the column header. Each click toggles between ascending and descending order.



The screenshot shows a window titled "[A.1] 172.17.158.14 : New Buffer Alarms". It contains a table with the following data:

Code	Port	Description	Status	Date	Time
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:28:33
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:29:43
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:31:13
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:32:23
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:33:53
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:35:03
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:37:33
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:37:43
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:39:13
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:39:51
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:41:21
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:42:31
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:44:01
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:45:11
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:46:41
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:47:51
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:49:21
(130)	SER	MAIN LINK OVERFLOW	MAJOR	09-07-2006	09:49:52
(130)	SER	MAIN LINK OVERFLOW	OFF	09-07-2006	09:51:22

At the bottom of the dialog box are buttons for "Print...", "Save to File...", "Close", and "Refresh". A status bar at the very bottom says "Working ...".

Figure 7-11. New Buffer Alarms Dialog Box

Table 7-9. New Buffer Alarms Parameters

Parameter	Possible Values / Remarks
Code	Alarm code
Port	Port reporting the alarm
Description	Description of the alarm
Status	<b>Off, Event, Minor, Major, Warning, Critical</b>
Date	Date in the format DD-MM-YYYY
Time	Time in the format: HH:MM:SS
[Print]	Click <Print> to print the New Buffer Alarms list. (disabled if the list is empty).
[Save to File]	Click <Save to File> to save the New Buffer Alarms list to a file. The Save dialog box appears. In the File Name field, enter the name of the file. In the File of type field, select <b>Acrobat (*.pdf)</b> or <b>HTML (*.htm)</b> . Click <b>Save</b> . (disabled if the list is empty).
[Close]	Click <Close> to close the New Buffer Alarms list.
[Refresh]	Click <Refresh> to update the New Buffer Alarms list.

## Displaying the Port Active Alarm List

The **Alarms > Display** command enables you to view active alarms for a selected port.

► To display the active alarms for a port:

1. In Agent mode, select a port.
2. From the **Fault** menu, select **Alarms > Display**.
3. Sort the list of alarms by any one of the column values by clicking on the column header. Each click toggles between ascending and descending order.

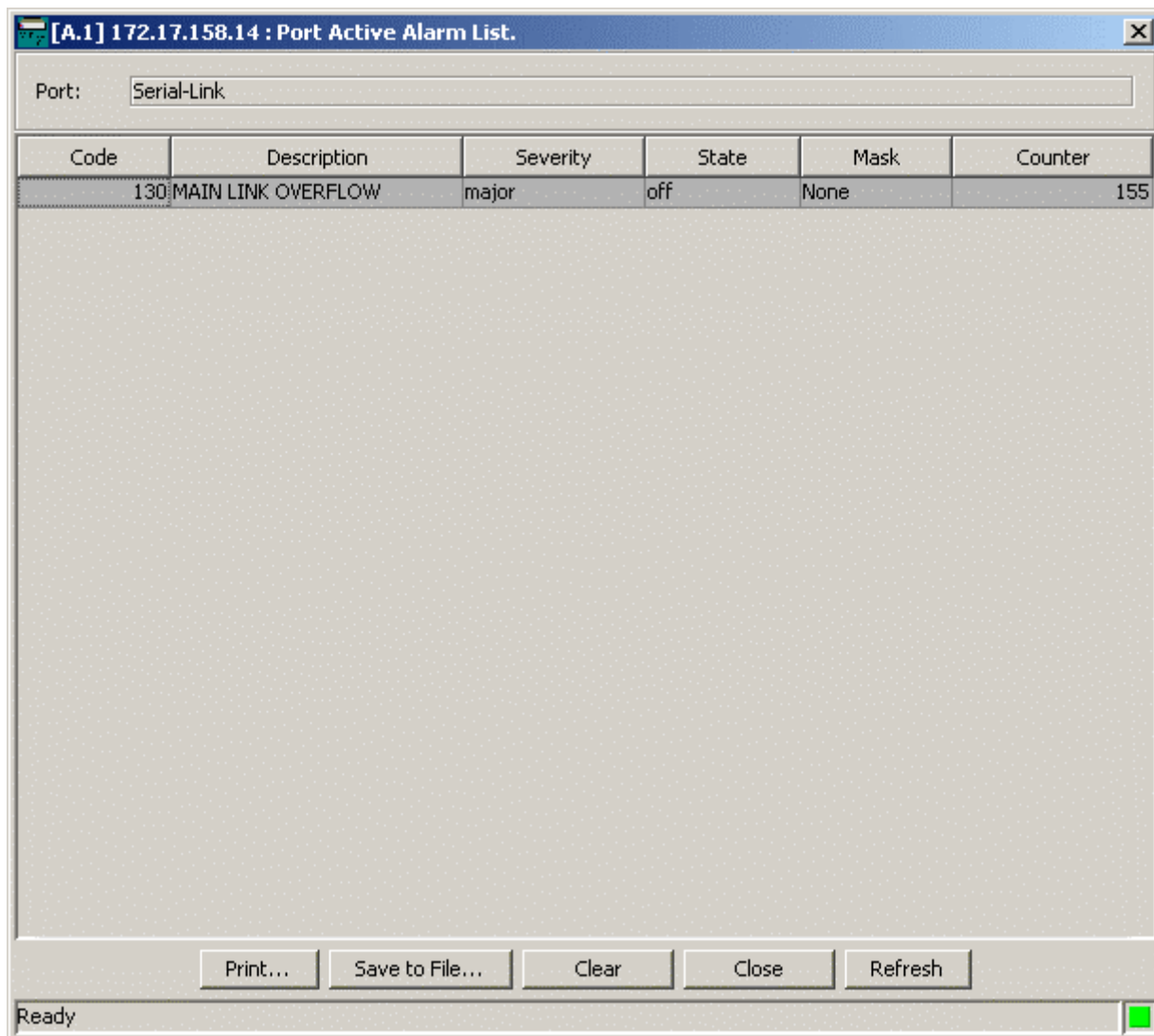


Figure 7-12. Port Active Alarm List Dialog Box

Table 7-10. Port Active Alarm List Parameters

Parameter	Possible Values / Remarks
Port	The port reporting the alarm
Code	Alarm code
Description	Description of the alarm
Severity	<b>Event, Minor, Major, Warning, Critical</b>
Status	<b>Off, On</b>
Mask	<b>Mask, None</b>
Counter	Number of times this alarm occurred since the system was last started or this alarm was last cleared.
[Print]	Click < <b>Print</b> > to print the Port Active Alarm List. Disabled if the list is empty.
[Save to File]	Click < <b>Save to File</b> > to save the Port Active Alarm List to a file. The Save dialog box appears. In the File Name field, enter the name of the file. In the File of type field, select <b>Acrobat (*.pdf)</b> or <b>HTML (*.htm)</b> . Click <b>Save</b> . Disabled if the list is empty.
[Clear]	Click < <b>Clear</b> > to clear the selected alarm from the Port Active Alarm List. Disabled if the list is empty.
[Close]	Click < <b>Close</b> > to close the Port Active Alarm List dialog box
[Refresh]	Click < <b>Refresh</b> > to update the Port Active Alarm List

## Clearing the Port Active Alarm Buffer

The **Alarms > Clear** command enables you to clear all entries in the active alarm buffer for a selected port.

► **To clear the Port Active Alarm buffer:**

1. In Agent mode, select a port.
2. From the **Fault** menu, select **Alarms > Clear**.

The next time you view the port level Active Alarm List, only alarms that occur after the Clear operation appear in the list.


## 7.2 Running Loopback Tests

The **Test** command enables you to run loop tests on a port or its time slots, to troubleshoot data loss on a link and locate where the data is being lost in order to correct the problem.

**Note**

*This test is not relevant for Serial Link or Ethernet ports.*

► **To run a test on a port:**

1. In Agent mode, select a port.
2. From the **Diagnostics** menu, select **Test**.  
or  
From the toolbar, click .
3. From the **Test** drop down list, select the desired test.  
If you want to enable per time slot testing,  
select **Test per TS** and then select the desired time slots.
4. Configure the desired test parameters.
5. Click <**Start Test**> to begin testing.
6. When you are finished testing, be sure to click <**Stop Test**> to return the port to normal operation.

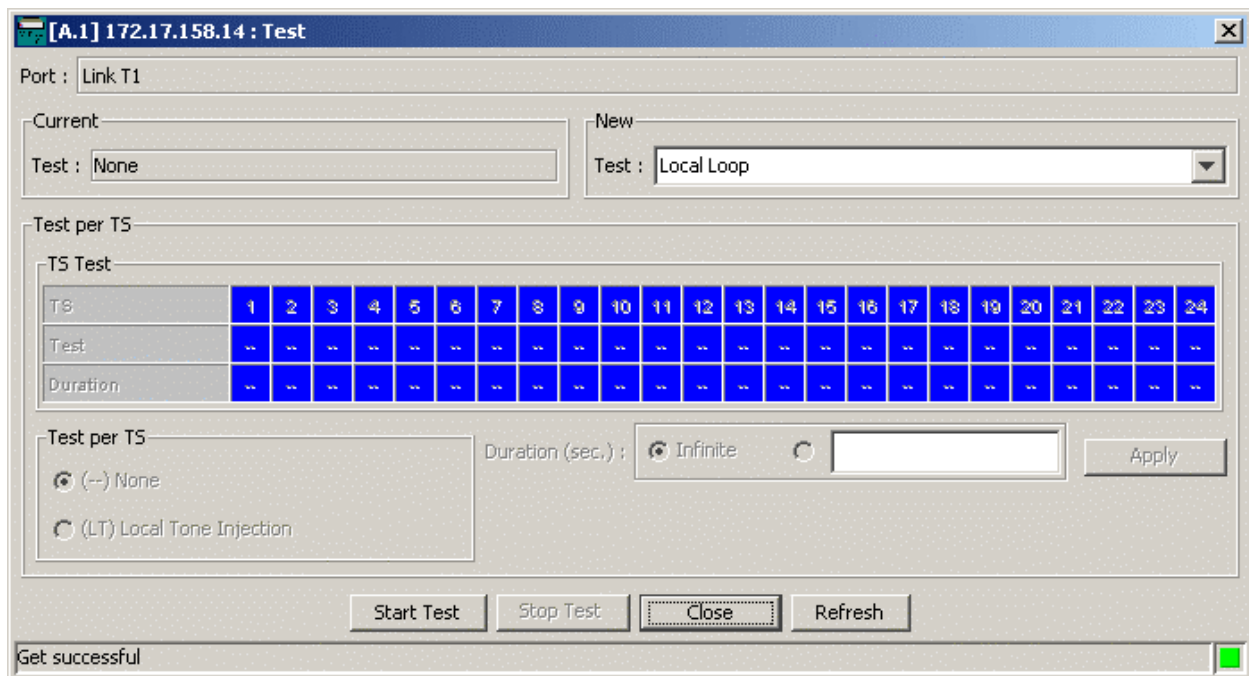


Figure 7-13. Test Dialog Box for E1/T1 Ports (with Time Slots)

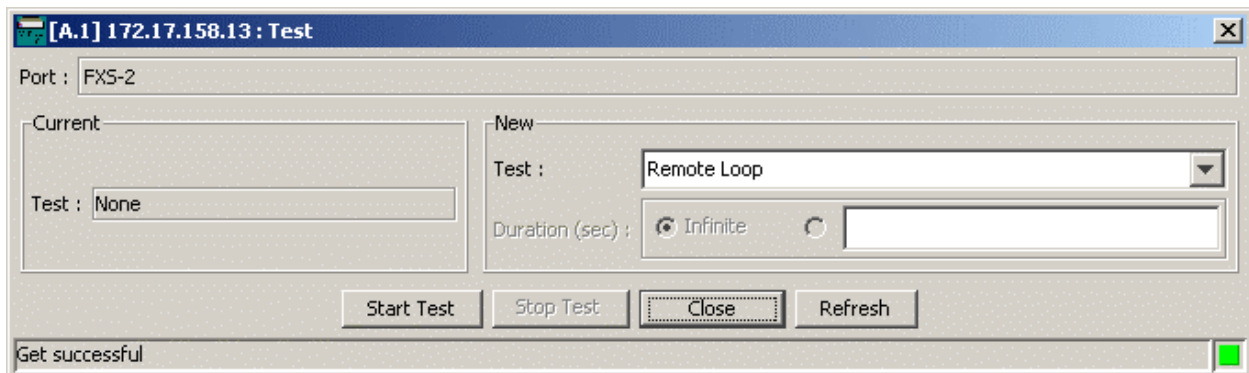


Figure 7-14. Test Dialog Box for Analog Voice Ports (without Time Slots)

Table 7-11. Test Parameters

Parameter	Possible Values / Remarks
Port	Channel E1, Channel T1, Link E1, Link T1, FXS, FXO, E&M
<b>Current</b>	
Test	Description of the test currently running. E1/T1: <b>Local Loop, Remote Loop, Test per TS, None</b> FXS/FXO/E&M: <b>Remote Loop, Local Tone Injection, Remote Tone Injection, None</b>
<b>New</b> Disabled if a test is currently running.	
Test	Test description. E1/T1: <b>Local Loop, Remote Loop, Test per TS, None</b> FXS/FXO/E&M: <b>Remote Loop, Local Tone Injection, Remote Tone Injection, None</b>
Duration (sec)	Duration of test to be run. <b>Infinite, 1...60</b> Default: <b>Infinite</b> (no time limit to test length) Disabled for Local Loop and Remote Loop tests.
<b>Test per TS</b> Enabled only if Test is set to Test Per TS in either New or Current group.	
Time slot	ID of the time slot to be tested <b>1...31 (E1), 1...24 (T1)</b>
Test	-- (None), <b>LT</b> (Local Tone Injection)
Duration	-- (No test running), <b>1...60</b> (Duration of test in seconds), <b>Inf</b> (No time limit to test length)
[Start Test]	Click < <b>Start Test</b> > to begin testing a port
[Stop Test]	Click < <b>Stop Test</b> > to stop the currently running test before its configured duration
[Close]	Click < <b>Close</b> > to close the Port Test Dialog Box
[Refresh]	Click < <b>Refresh</b> > to update the Port Test information



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